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CAMERA CRAFT

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A Photographic Monthly

George Allen Young, Editor

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CAMERA CRAFT

"Betty Jane Rodes" *C. Weston Booth*

23rd Los Angeles International Salon

nuary 1940 PRICE 25c
EVEN DEADLY ERRORS . . . . . William Mortensen
UKAR THE HOBBYIST . . . . Al and De Vera Bernsohn
XPOSING CLOSE-UPS . . . . . Stanley T. Clough

THE PRINT ABOVE IS AN EXAMPLE OF THE NEW ARA-BITUMEN PROCESS, AVAILABLE ONLY TO STUDENTS OF THE MORTENSEN SCHOOL OF PHOTOGRAPHY.

MORTENSEN SCHOOL OF PHOTOGRAPHY

LAGUNA BEACH CALIFORNIA

"Young Fisherfolk" *William Mortensen*

Seven Deadly Errors

William Mortensen

Backgrounds for the Outdoor Portrait

OUTDOOR portraiture, we have seen, is very often the first problem that the amateur attempts. And it usually is also the source of his first disappointment in photography. For, despite its deceptively simple appearance, outdoor portraiture embodies some of the toughest complications in the field of photography.

Many things conspire to spoil the work of the maker of outdoor portraits: lighting, exposure, depth of field, posing of the subject. Of these things, however, perhaps the most immediately apparent source of error in outdoor portraits is found in the choice and use of *backgrounds*. Figures 1, 2 and 3 will be recognized as typical instances of pictures that would have been fairly good if it had not been for faulty backgrounds.

(For the sake of definition, it should be understood that the term "background," as used in this article, is taken to mean *all parts of the setting of the subject*, including even those parts that come in front of it.)

In the work of beginners, such errors usually are the result of actual failure to see the background. In their preoccupation with the subject, they fail to take any other matters into account. But the literal-minded camera is no more preoccupied with the principal subject than it is with anything else, and so it turns up all sorts of strange things in the background that the photographer has overlooked completely.

So the first thing to do toward improving the backgrounds in your outdoor portraiture is to learn to take notice of them, both as they are in themselves and as they relate themselves to the subject matter.

But even after getting over this preliminary background-blindness,

the worker is still liable to arrive at such unfortunate results as those shown in Figures 1, 2 and 3. Advanced amateurs, as we know, are often very fussy in selecting backgrounds for their outdoor portraits. But, despite their care, unfortunate things happen: a flowering branch seems to sprout wierdly from the girl friend's ear, and what was intended as a portrait of Aunt Emma standing in front of the Grand Canyon turns out to be a portrait of the Grand Canyon standing behind Aunt Emma. All such errors are the result of not giving enough thought to the *function* of backgrounds and their *relationship* to the subject matter.

Three Axioms

The important facts about the use of backgrounds in outdoor portraiture may be summed up in about three axioms.

I. *The background should be subordinate.*
II. *The background should be appropriate.*
III. *The background should be isolated.*

The truth of the first axiom is, as they say in Euclid, self-evident. Since the picture is a portrait, all other parts of it must be subordinated to the presentation of the subject matter. But the mere recognition of this fact is not sufficient to secure proper subordination of backgrounds. Backgrounds, as we shall presently see, have numerous unexpected and subtle ways of calling attention to themselves, and we must be prepared to cope with them all.

The second axiom is perhaps not so immediately self-evident as the first one, but it is equally important. Delicate issues are raised in applying it, for appreciation of the "appropriate" involves aesthetic discrimination. To some extent, the second axiom is a corrolary of the first, since a background that is definitely at odds with the subject matter becomes thereby unduly conspicuous.

The third axiom is not apparent at first glance, but it involves a basic principle in the organization of the outdoor portrait. *The background and the subject matter are two separate entities, and they must not be permitted to encroach physically on each other.* The best background for an outdoor portrait is nearly as remote and separate in effect as a painted back-drop in a theatre. A useful device for simplifying pictorial construction and securing the necessary isolation of the background is the organization of the picture into *planes.* The classic landscape, as exemplified by Claude Lorraine, was usually organized on a basis of three planes. An outdoor portrait may occasionaly be presented in this manner, with the principal figure occupying the second plane; but the safest plan to follow, and the one most applicable to our present problem, is that of the 18th Century portrait painters, who commonly organized their material in two planes only.

A familiar trick of amateurs is to have the subject sit on or lean against some part of the background. (See Figure 4.) This procedure always yields a bad picture because it violates the third axiom by failing to preserve the isolation of the background.

Let us now look at some of the common violations of these axioms as exemplified in concrete practice.

Figure 13 *William Mortensen*

Figure 1

Figure 2

The Seven Deadly Errors

There are seven common and deadly errors involving the use of backgrounds in outdoor portraiture. These errors result from various violations of three preceding axioms.

Here are the seven errors:

1. The confused background.
2. The contrasty background.
3. The background violently out of focus.
4. "Traps" in the background.
5. The background of wrong empathy.
6. The background that dwarfs the subject.
7. The background wrongly placed in relationship to head or picture space.

The Confused Background

The confused background (see Figure 5) violates the first axiom because its confusion draws the eye away from the subject matter. Attention that should be given to the subject matter is squandered in the effort to solve the insignificant complexities in the background. Thus, in Figure 5, the eye, which really wants to give its attention to the not unattractive center of interest, finds itself compelled against its will to explore the equivocal blobs and curlicues that surround the figure. In a picture with such a background, we witness the triumph of petty annoyances over major interest.

Probably a census would show that, in various modified forms, this

Figure 3

Figure 4

is the commonest and most frequently encountered of these seven deadly errors. A confused background is the most likely result of casual carelessness in this matter. The frequency of the fault is increased by the fact that the worker often does not notice the confusion that appears in the background because he has simply sought (and obtained) a *logical and appropriate* background for his subject. For this reason he defends his picture against criticism: "How can the background be called confused?" he says. "It's just the setting this subject naturally would appear in." So he portrays a farmer in a farmyard which is filled with various items of farm machinery, sundry outhouses, and numerous ducks and chickens. The background is undoubtedly appropriate, but it contains so much, and is so little organized, that the subject matter is almost overlooked in the confusion.

Note that the objectionable confusion in the confused background is not a logical confusion, but is, in the final analysis, purely a matter of formation and design. An unconfused background is one that resolves itself, at the very first glance, into a simple pattern of a few readily comprehended lines and masses.

The Contrasty Background

The photographic medium employs a scale of half-tone grays. In this scale the strongest notes of emphasis are the extremes, near-black and near-white. These elements of emphasis should be reserved for the most important part of the picture. The background should contain neither the darkest dark nor the lightest light.

Figure 5

Figure 6

A picture which places the extremes of contrast in the background (see Figure 6) violates the first axiom because it is impossible properly to subordinate the background when it contains such emphatic elements.

Excessive contrast in the background may result either from lighting or from bad arrangement of the extremes of local tone. The latter situation is met with in studio portraits made in front of a strongly patterned tapestry. In outdoor portraiture, however, lighting is the more common source of trouble. A background consisting of sparkling foliage or of broken and sharply modeled planes placed close behind the head is apt, under sunlight, to show more contrast than is revealed in the subtler modeling of the face. Amateurs frequently attempt outdoor portraits in the shade of trees or porch without taking thought of the stronger sunlight beyond. This circumstance produces backgrounds of violent contrast. (Figure 7.)

The best protection against falling into this error is consistent use of a dark blue viewing glass or a blue-gray "structure filter." The reduced luminosities seen through the glass reveal excessive contrasts much more clearly than the naked eye does.

Background Violently Out of Focus

Figure 8 shows the third of the errors relating to the use of the background in outdoor portraiture.

Like the two preceding errors, a background violently out of focus, as this one is, constitutes a violation of the first axiom. The strangely blurred contours create a definite distraction that prevent the background from being properly subordinated. The very ambiguity of the smears exaggerates

Figure 7

Figure 8

their importance: one can't help speculating whether that extraordinary object is a street car or a haystack.

Unlike the other errors, this one results, not from bad selection of material, but simply from unskillful handling of the camera. There is not enough depth of field in Figure 8. Closing down the lens a couple of stops would render the background with sufficient sharpness to prevent it from drawing attention to itself.

A *slight* softening of contours in the background is not objectionable, and is sometimes a distinct assistance in securing subordination. It is only when it is pushed to grotesque extremes that the background out of focus becomes a hazard and liability.

"Traps" in the Background

In Figure 9 we see yet another sort of faulty background. The numerous white patches of sky all serve to catch the eye and distract the attention from the subject matter. Being surrounded by dark tones, these white areas seem, by contrast, even more glaring and aggressive than they really are.

"Traps"* of this sort are particularly liable to be encountered when using foliage as a background. Be sure to chose foliage masses compact enough to prevent the appearance of patches of sky. Also avoid spots of dappled sunlight in the foreground, for they too will act as traps. Arches, that usual architectural feature of campus photography, are another frequent source of this error. So also are trellisses and arbors.

*For fuller discussion of "traps," see The Model, page 58.

Figure 9

Figure 10

Background of Wrong Empathy

In Figure 10 we have an example of a background that violates the second of the axioms—it is inappropriate to the subject matter placed in front of it.

"Empathy" is a word used by writers on aesthetics to express the *physical* reaction of the beholder to various lines, shapes and materials. When a figure is placed in a manifestly wrong environment, we feel actual *physical* discomfort at the diserepancy. We feel that the setting is on the point of doing actual damage to the subject. For example, a picture of a girl in a delicate fluffy dress in a setting of brambles would undoubtedly make us feel acutely uncomfortable because of its *bad empathy*.

So it is with this picture, Figure 10. The total impression is very unpleasant—because of the suggestion that the model has been impaled through the neck.

Other typical examples of bad empathy would be the following:

1. Informal costume in front of a formal background. (A bathing suit in the Astor ballroom, to cite an extreme instance.)
2. An arch in the background that seems to press down on the subject's head.
3. A twig or branch that looks as though it was about to poke the subject in the eye.

As to means of avoiding bad empathy, it is of course impossible to give any adequate formula. A sense of the pictorially appropriate is purely a

Figure 11

Figure 12

matter of taste—and this fact puts the issue squarely up to the individual worker.

Background that Dwarfs the Subject

In Figure 1 we see another case of an insubordinate background. The principal mass in the background is here so large and imposing that it attracts an undue amount of attention.

The dwarfing of the subject may be occasioned; as in Figure 1, by some single huge element in the background—a big tree, a cliff, a building—or it simply may be due to allotting disproportionate picture area to the background, so that it seems to pile up and press down heavily on the subject. (Figure 11). In this picture there is also an element of bad empathy owing to the unpleasant suggestion of crushing weight.

Background Wrongly Placed

A background that is in itself unobjectionable may create a very unfortunate effect by being placed in wrong relationship to the subject.

Certain cases of bad empathy (which we have already referred to) grow out of wrong placement of the background. Things in the background that are not unpleasant in themselves may become so by being placed in too close proximity to the subject. The shocking empathy in Figure 10 would have been avoided with a slight alteration of the relative position of subject and tree.

A fairly constant element in outdoor portraiture is the *skyline*. The proper adjustment of the skyline is an important phase of the background

Figure 14

Figure 15

problem. Only when the skyline is uncomplicated and very delicately drawn—as sometimes happens on misty days—may its placement be safely disregarded. When strongly marked, however, it must be placed with care and consideration.

With full length figures, the skyline should be placed either very high or very low—in order to avoid the criss-cross effect that is evident when the skyline intersects the figure about midway (Figures 2 and 12). As a general rule, it may be suggested that, with a full length figure, the skyline (if strongly defined) should be placed either below the knees or above the head. (See Frontispiece and Figure 13.) But note that, if the skyline is placed high, a comfortable amount of head-room should be allowed. A skyline that is level with the top of the head, or barely clears it, gives an oppressive, low-ceilinged suggestion.

A somewhat different problem is involved in the placement of the skyline with figures of less than full length. Under these conditions, the placing of the skyline is governed by two factors:

1. Division of the picture space.
2. The contours of the subject.

Avoid a skyline that divides the picture in half horizontally. Much more pleasing is a position that divides the picture into approximately one-third and two-thirds.

Be careful that the skyline does not relate itself in any unexpected or ludicrous fashion to the contours of the body. It should not seem to attach itself to, or sprout from, angles of the figure. Note in Figure 3, for

Figure 16

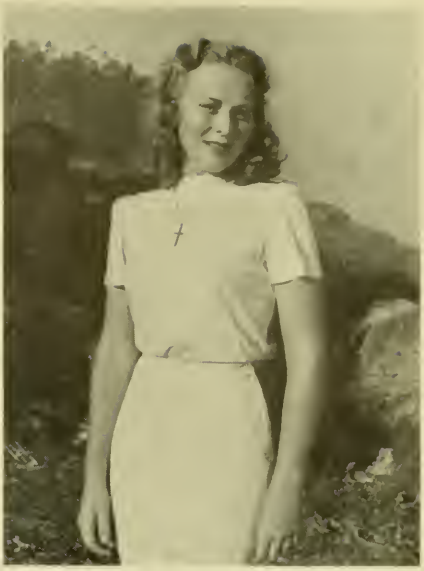


Figure 17

example, how the model seems to have an absurdly shaggy coiffure because the tree contours extend the contours of the head. Nor should the skyline call attention to any of the principal divisions or articulations of the body. In this particular it is well to follow the suggestion made in *The Model* governing the length of skirts, sleeves, etc.* A sleeve of precisely elbow length, for instance, is very ugly. Much better is a sleeve that is just a little longer or a little shorter. In a similar manner, avoid placing the skyline so that it intersects the body *precisely* at the shoulders, *precisely* at the elbow, *precisely* at the knees. (See Figure 14.) Like a garment, it should avoid these emphatic points and fall inconspicuously somewhere between.

Note that a strongly sloped skyline suggests that the head placed in front of it should be turned to a profile or three-quarter angle rather than presented in full-face. Under these conditions, the skyline should be high behind the head and low in front, as in Figure 15. The opposite arrangement (Figure 16) is ugly.

One other skyline error should be mentioned. Avoid placing the figure so that it covers an abrupt change in direction in the skyline, as in Figure 17. Such an effect calls undue attention to the background, for the observer always speculates as to what vagaries the skyline indulges in behind the subject's back.

The above article is an excerpt from Mr. Mortensen's forthcoming book "Outdoor Portraiture," which is scheduled for publication on April 1, 1940.—ED.

*The Model, page 111.

Hukar The Hobbyist

Al and DeVera Bernsohn

HE WAS embarrassed. Although they knew he had taken only occasional test pictures, he was to photograph eight experienced models. They were accustomed to watching him design and build sets, puttering about the studio in paint-smudged overalls.

"Who's handling the camera today," one girl asked, "Sarra or Hiller?"

He gulped, prepared for the worst, and replied in a small voice, "I am."

The "worst" never came. The girls crowded about him, patting him on the back, wishing him the best of luck. He overheard one whisper something about helping George make a go of it.

The performances of those models would have done credit to the most finished of actresses. They had assumed their full share of the responsibility for a good picture and their sense of fair play and spirit of cooperation forced them to do far better work than a photographer could obtain by simply demanding it.

George Hukar learned that day that, no matter how much time the photographer spends perfecting his technical and mechanical abilities, about 50 per cent of a good illustration's success is due to the work of the models.

His hobbies are sculpture, woodcarving, sketching and painting. Hukar decided that if living models could account for so much of the success of a photograph, models created by the photographer could play an equally important part.

So he combined photography with his hobbies.

He made miniature sets; building parts, painting backgrounds and lighting them with little bulbs. Humorous little figures, caricaturing humans, were placed before the scenes and the finished set-ups were photographed. More than one product has been sold with the aid of these little figures and Hukar has illustrated a children's book with them. Best of all, the impersonality of the figures gave the photographer a medium for calling a spade a spade without hurting the feelings of his friends.

Hukar

Dolls, animal figures, etc., which can be purchased ready-made can often be used to good advantage.

Hukar at work

There are many ways in which these figures may be made. Some of Anton Bruehl's first widely popular photographs were of paper cut-outs so expertly lighted that they looked almost three-dimensional. Artists often use soap as their medium.

Hukar prefers woodcarving and clay modeling, either in bas relief or in the round.

For his miniature sets, he first establishes a scale and all objects appearing in the photograph are so standardized. If a six-foot person is represented by an eight-inch figure, then the chair in the set must be only one-ninth the size of a normal chair.

Toy departments can frequently furnish many of the figures and properties. Balsa wood is an excellent medium from which to carve any other properties wanted, such as furniture, an automobile, canoe, tree trunk or other objects the subject demands.

For his figures, Hukar whittles the chest formation, pelvis, thighs, legs, arms, forearms and a rough head out of balsa, which gives bulk without weight. He joins these parts with wires to make them movable and permits wires to extend through the heels to permit setting up the figure without obvious braces. The bodies are shellacked to prevent the oily plasticine from soaking into the wood and getting crumbly.

The plasticine is mixed with beeswax to make it better suited to finely detailed work. About one part beeswax to two parts plasticine, melted together in an old dish or pie pan and stirred thoroughly, cools off to

Hukar

Paper cut-outs may be utilized in some such fashion as this.

Wood Carving

by Hukar

almost perfect consistency for modeling work. The heat from the hands makes this material smooth and pliable and when it has cooled it is as hard and smooth as wax.

Opaque water colors, regular show card paint, are used to color the figures. Soap mixed in with the paint helps it cover the greasy plasticine surface. These colors dry almost instantly and do not have a hard-to-photograph sheen. If the figure's clothing is also modeled in the clay, a cloth-like texture may be obtained by pressing cloth into the surface before the paint has dried. It will leave its impression after it has been removed.

Clothing may be made of crepe paper or any fine-textured cloth. China silk is good. Hukar works by wetting the cloth, draping it into the desired folds while it is still wet and permitting it to dry on the model. The miniature garments retain their draping after the cloth dries if handled in this manner.

Application of this type of little figure may be found any month on the cover of Esquire, frequently on Collier's cover, and in many advertisements, such as Ivory Soap and DuPont Rayon's. They are particularly effective because of their impersonality and the facility with which they may be made to exaggerate human characteristics, without too much bite.

Once Hukar was asked to show the power of an antiseptic to protect a happy little child from infection. It was comparatively simple to photograph the happy little child, but no matter how grotesquely the make-up artists distored a human subject, they just couldn't make him look like

Hukar

Miniature Clay Figures

a convincing representation of infection. Finally Hukar made a clay miniature of a grotesque figure and superimposed its photograph on that of the child, getting just the right degree of fantastic menace.

A wool advertisement used a broad, rolling sweep of the material to represent a field on which a miniature shepherd stood and watched while his miniature flock grazed. A superimposed cloud background completed the effect.

In photographing the toy figures and the sets, the commonest mistake photographers make is use of standard sized equipment. The filament in the regular 1,000-watt studio light is twice as wide as the heads of the doll-figures. The desired degree of illusion is retained much better when a light of miniature proportions is used. Pilot lights, such as are used for radio dials, and Christmas tree lights (which have excellent wiring, also) are of about the right size. Miniature reflectors and screens are quite simple to make for these lights and they may be handled in the same way as normal lighting is used in standard size photography.

To obtain a strong, regulated light, corresponding to a spotlight, Hukar uses a regular 500-watt bulb screened by an opaque piece of cardboard with a small hole in the center.

Use of a camera with a long-focus lens or a normal lens results in photographs of miniature sets comparable to telephoto lens results on full-size subjects. Hukar works close to his subjects, selecting a viewpoint comparable to eye level of its figures. He uses a short focus, wide angle

lens, stopped down to the limit. Sometimes he even uses a pinhole mask in front of the lens to obtain the effect of stopping it down still further. There is no danger of the subject moving, so the low-powered lights, about four of which are usually used on one set, and the small aperture should not impair the results. Hukar has taken exposures of as long as a half-hour with a pinhole aperture in order to get the desired degree of clarity in the negative.

Hukar maintains that the lighting should never be moved between test exposures of the subject. Here distances are figured in inches and the difference between the effect of a light 10 inches away from that of one 12 inches away is appreciable.

After several such pictures have been taken and the photographer becomes proficient in constructing the sets, he will probably wish to try building an even more conceivable illusion than the conventional miniature sets permit. For this, exaggerated perspective is helpful. The subjects to the rear of the set are proportionately smaller than those in the foreground. The back drop is smaller than the opening in front and the lines forming the edges of the room run from the rear to the front with exaggerated angularity.

A high piled carpeting gives the effect of grass. Dyed sponge run through a meat chopper makes excellent foliage. Ingenuity, patience, a sense of humor, all are brought out by this sort of work.

A second type of miniature subject, peculiarly Hukar's own development, is the making of bas relief subjects of clay on a glass ground. Side-lighting on such subjects gives them the illusion of roundness and the bas relief is seldom detectable in a photograph.

Hukar sets up his glass under lighting conditions identical with those by which the photograph is to be made. From a perspective drawing of the subject he is modeling, he sketches a rough outline of the foreground subjects on the glass. China marking pencils or any other grease pencils will do for this. The clay is piled on to a height of about one-fourth inch.

About a 10 x 12 piece of glass is used to carry the foreground subjects. While the sculptor-photographer works on this glass, it gets smudged with plasticine and greasy. Any ordinary commercial cleaning fluid may be used to clean the glass between the foreground figures. Benzine will do. Then the subject is painted in water colors. Of course, the photographer has been careful to keep the subject matter well away from the edges of the glass, for obvious reasons.

Next, a larger piece of glass, which is to go two and a half inches behind the foreground one, is similarly handled for either intermediate detail or as a background. Sometimes the background is simply painted on white paper. Naturally the subject matter on the pieces of glass to the rear is kept proportionately small to give the desired effect of perspective.

This sort of work has a limitation in camera angle because of perspective. Ground level is best so that all four legs of a chair may be placed in contact with the base. Otherwise the legs will not all appear to be touching the ground.

For special protuberances, such as the toe of a shoe or other necessary foreground parts, Hukar frequently adds considerable clay to the front to further the illusion of roundness. If the bas relief subject may be readily

Hukar

Bas Relief Figures

identified as a bas relief from its photograph, Hukar considers it unsuccessful.

The various sheets of glass are set up in a frame made of grooved boards and they are photographed with a pola-screen lens to kill any reflections the glass might pick up. The pola-screen, incidentally, also permits photographing of woodcarving so as to show the grain far more completely than the naked eye can discern it.

Hukar also likes to make masks and ornaments. He claims that the feel of the clay improves his photography. "A study of sculpture or modeling is one way of impressing on your mind the solidity and texture of objects. In drawing, and often in straight photography, we tend to lose sight of the third dimension. No sculptor could do that. If you've modeled something of plasticine, you're disappointed unless a photograph of it conveys the same feeling of roundness you had when working with the plastic material," he says. "You *know* granite must look hard, marble must look smooth, even that certain clouds must be solid in form though light and fleecy."

He claims that much of the miniature sculpture would be absolutely worthless were it not coordinated with photography. It is made to be photographed, not to be observed and handled. It is only in the photograph that any illusion of size and reality is obtained.

Hukar

Example of Painted Background

Sculpture teaches light and shade and how they depict the contours of the subject matter. It's all too easy to let a strong shadow which tells a lie about the subject slip by your attention, he contends. But the man who has felt that form take shape under his fingers wants it depicted attractively and accurately.

Woodcarving has essentially the same effect on the craftsman. A photograph of a woodcarving is an inexpensive way of reproducing it; and the rendition of texture and form may even be improved by good lighting and a pola-screen. Conversely, a photograph of a natural subject may give the hobbyist a model for his sculpture or carving. A large carved lamp base in Hukar's home was done after a pattern suggested by a photograph of a partially draped nude.

The greatest contribution a study of the arts gives to the photographer is its improvement of his vision. Hukar says that there are two types of photographers. One type is part of his camera and can't visualize a subject until it is seen on the groundglass. Groundglass observation is used even to plan the lighting and composition of the subject. The other type (who usually has an artistic background) visualizes the set, viewpoint, light relationships, subject matter, balance and composition, either in the studio or in the field. He makes all arrangements for the picture. Then sets up the camera.

Hukar

Clay Portrait of Lejaren Hiller

Hukar suggests that amateurs would profit by studying drawing or sculpture as a sideline. Not with the purpose of doing good work in the mediums, but because of the additional understanding of composition and light and shade, which such training gives. Whether the amateur works in his home studio, building from nothing to a finished print, or in the open, selecting suitable subject matter from all nature, he can utilize his artistic training to recognize appealing subject matter and the best method of presenting it.

Ability to handle miniature sets may often result in material savings for the photographer. Possibly the idea he has for a background and some properties to use in the publicity of his favorite little theatre just won't photograph well. An inexpensive way to find out is to build them in miniature. A large oil company planned a series which was to feature a robot having various adventures. Hukar made a model which photographed well. In fact it was so successful that the model was used in the first illustration of the series.

Then the tremendous, six and a half foot robot was completed. It could perform in all sorts of ways. It was photoraphed for the second illustration of the series.

The manufacturer rejected the photographs. He explained that the mystery was gone in a picture that showed all the mechanical joints and attachments, "and anyway," he added, "it's not as convincing as the first."

Hukar's hobbies had been acknowledged.

Formula For Correct Exposure

Stanley T. Clough

AMATEUR photographers eventually become interested in recording the unlimited wealth of fascinating photogenic material such as curious shells, flower structure, and table top photographs. Photomontage also offers creative possibilities to the modern minded interested in unusual pictorial effects.

Many photographers first attempting subjects of this nature fail to realize they are confronted with an unusual exposure problem which may spoil a good deal of film and patience unless proper adjustment of exposure time is made.

While most exposure meters on the market give accurate readings if used according to instructions, the problem concerns the change in value of the lens stop when the bellows is racked forward to focus objects close to the camera.

The factors which determine the "f" value are the distance of the lens from the film and the size of the lens opening, usually referred to as the aperture. When the lens is focussed on infinity it is one focal length distant from the film and the "f" values which are marked on lenses are computed for the lens in that position.

When the lens is racked out to focus near objects one of the factors which determine the "f" value is changed, namely the distance from lens to film, with the result that the *actual* as distinguished from the *marked* "f" value is also changed.

For instance suppose we consider the term F:8. This implies that when the lens is focussed on infinity and the aperture set at F:8, that the diameter of the aperture opening is ⅛ of the focal length of the lens. In

"Immigrant Family, 1905" *Lewis Hine*

6th International Salon

Pictorial Photographers of America

other words the "f" value of the lens is determined by dividing the focal length of the lens by the diameter of the aperture. Thus a four inch lens with a one half inch opening would have an "f" value of F:8 because four divided by one half equals eight.

If this same lens is racked out to focus an image life size it would then be eight inches distant from the film, and the same calculation as above would then be eight divided by one half, which equals sixteen, and the *actual* "f" value would be F:16, though the lens would still be set for F:8. Since F:16 admits only one fourth as much light as F:8, four times increase in exposure would be required.

All photographs except distant views are made with the lens slightly more than one focal length distant from the film. In ordinary shooting, however, the change in the effective "f" value is negligible and can be disregarded. When extreme close-ups are being made, however, it is necessary to make allowances for this factor as the above example clearly shows.

Discussions of these optical factors affecting exposure have occasionally appeared in photographic journals but these articles usually have ended with the statement of the above summarized facts. It is my intention to add to this discussion a practical and readily applied method for compensating at all working distances so that exposures will be accurate. It will be found particularly advantageous to photographers making color separation negatives of small objects or in still life work and the like where correct exposure is of prime importance.

First let us consider the elements which must be effective in calculating a formula, namely the bellows extension at infinity and the bellows extension we are actually using when photographing a close-up. These we will symbolize as "a" and "b" for the sake of simplicity.

a = bellows extension used on close-up.
b = bellows extension when camera is set at infinity.

Then: $\frac{a^2}{b^2}$ will give the factor by which the exposure derived from the meter reading must be multiplied.

Let us take an instance here in my studio. I am about to photograph in color a commercial object with a nine inch lens. You recall that this nine inch lens will be nine inches from the film when focussed on infinity so symbol "b" = 9, and always will in the formula as long as I use the nine inch lens. Next, having set up the object satisfactorily I compose the subject and focus it sharply on the ground glass ready to make the exposure. Now I obtain factor "a" by measuring the distance from the film to the lens which turns out to be fifteen inches and a slight fraction which I disregard. (Very rarely does this distance happen to be eighteen inches or just double whatever focal length lens is used as other writers usually assume.) So our factor "a" = 15 and we have all the simple data necessary to calculate exactly our exposure compensation which proceeds thus:

$\frac{a^2}{b^2} = \frac{15^2}{9^2} = \frac{225}{81} = 2.78$ which is the amount the normal exposure must be multiplied by for correction due to lens being racked out.

When this factor is obtained take your reading with the exposure meter which we will suppose gives two seconds as the exposure necessary. Then $2 \times 2.78 = 5.56$ seconds which exposure will be correct for the nine inch lens when racked out to fifteen inches under these same conditions.

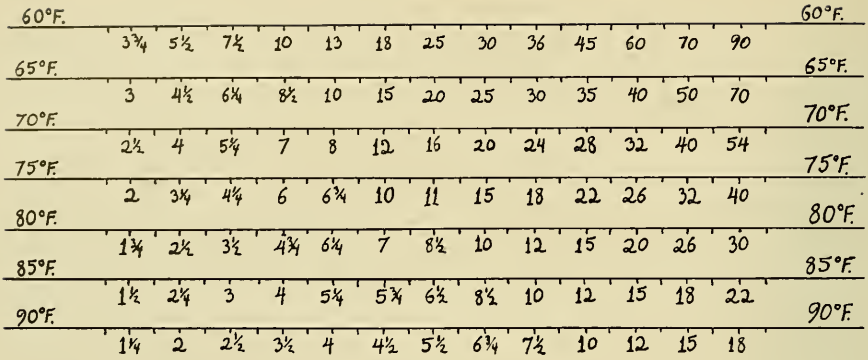
Once this formula is used its simplicity is at once apparent and as I have mentioned factor "b" is constant for each lens so all that is necessary to do is to measure the distance from the lens to film for the "a" factor.

Especially when working with color photography, I have found that all calculations can be eliminated by making a scale for each lens which has at intervals of a half inch a mark similar to a ruler, except in place of the inch marks I have substituted the number which the normal exposure is multiplied by. This may be of any material such as heavy cardboard, aluminum or even a yardstick. By using the formula, calculations may be made for any lens and placed on the scale which then only need be held up to the camera after the composing of the picture and focussing are completed. If much work is done with extended bellows as in copying, a scale may be firmly attached to the camera bed.

Developing Times At Varying Temperatures

Larry Conrad

DID you ever start to develop some films, only to find that the developer temperature was, say, 75° F., when the manufacturer's instructions were for a temperature of 65° F.? Since so many amateurs use developing tanks instead of drugstore development, I should think that others must have had as much trouble as I with this problem. This is surprising in view of the fact that most, if not all, of the popular amateur developers, may be used over a wide range of temperatures. D-76, for



Developing Time—Temperature Chart

example, may be used with perfect results anywhere between 55° F. and 80° F. Only one thing need be altered, and that is the developing time. As you already know, the colder a developer is, the longer you must develop. The reverse is true as the developer gets warmer.

It is usually very difficult to keep your tank or tray of developer at the temperature the manufacturer recommends, or even within a degree or two of that temperature. The usual procedure is to immerse the developing vessel in a larger vessel of water at the correct temperature, a messy and troublesome procedure. The larger vessel must be gotten out and filled with water, and then a half hour or so is spent trying to make this tank of water hit the elusive 65° or 70° F., either by adding ice, or by warming water and adding it carefully. But when you are all through, you are still unable to control the temperature to within plus or minus one degree. This is partly because it takes the developer a certain amount of time to get to the same temperature as the larger vessel of water, and partly because the larger vessel of water tends to return to room temperature during the ten to thirty minutes while development is in progress.

Thus it is easily seen that the best temperature for developing films in the home is room temperature, which is far more constant than any artificially created temperature could be. Unfortunately, there is no simple calculation, no rule-of-thumb for increasing or decreasing the developing time of a film to compensate for temperature alterations. Here is a chart (see illustration) which I have found to be a very handy darkroom device. It makes these alterations fairly accurately and easily. All you need is the chart and a fairly accurate thermometer, (either an accurate photographic thermometer or a less accurate fishpond one, obtainable at pet stores and five-and-dimes) to be able to develop your films at room temperature under any ordinary conditions.

Let's assume you have a film to be developed for eighteen minutes at 65° F. when the room and developer temperature is 75° F. On the chart you will notice a number of horizontal lines, each with a different tem-

perature-number at its end. Along these lines are scattered various numbers, each of which represents minutes. All you have to do is find "18" on the 65° F. line, which would be about halfway between the "15" and the "20." Then you run your finger straight down from the "18" until it crosses the horizontal line which represents the room temperature, in this case, the 75° F. line. The point at which it crosses will represent the number of minutes to develop at 75° F., in this case, ten and a half minutes, since your finger tip should pass between the "10" and the "11." The system sounds complicated in the describing, but in practice it is accurate to about plus or minus 10% of the time.

An accurate chart of this kind could only be compiled for a given film-developer combination, since both films and developers respond irregularly to changes in temperature.

I tested a number of different developers to find out what temperatures they might be used at without softening the emulsion of the film to a dangerous point. Here are the results of these tests:

Developer	*May Be Used Anywhere Between*
D-72 (dil. 1:2)	60-80° F.
DK-50	60-80° F.
D-76	60-85° F.
D-76d	60-90° F.
DK-20	60-90° F.
Rodinal (dil. 1:15)	60-85° F.
Edwal #12	60-90° F.
Sease #1	60-90° F.
Sease #3	60-90° F.
Champlin #15	60-72° F.
Champlin #16 (dil. 1:10 with 10% Sulphite)	60-80° F.

Within these temperatures, little or no softening of the emulsion results. Most of the above developers may be used at a temperature lower than 60° F., but the developing times cannot be calculated on a simple chart, because developing agents vary greatly in action at the lower temperatures.

It is suggested that those who find the chart useful might find it worthwhile to mount it in such a way that a celluloid "slider," like that on a slide-rule, may be used on it. This would make it easier to trace down from one line to another. The chart itself was compiled from a large quantity of manufacturer's data, and has been tested on the author's own films many times. The author believes that hereafter you can develop at room temperature, with completely satisfactory results.

You will notice the chart allows only for differences in temperature of five degrees only. If your room temperature is between those on the chart, the number of minutes halfway between the numbers above and below the correct point on the chart will prove suitable. This works for all "gammas," all densities of negative, all films, and all developers that were tested. Now you can count on the temperature of your developer remaining constant throughout development, since developer and room temperature are the same.

Cinema Section

Edited by

William A. Palmer

The Sound-On Disc Fan Speaks

J. T. Mullin

IT IS the purpose of this article to suggest typical means and procedure to be employed and followed in the production of sound accompaniments for otherwise silent pictures. Since the arguments in favor of the use of sound-on-disc in preference to sound-on-film for most amateur films have been quite conclusively demonstrated, this article will discuss only the use of sound-on-disc.

Granted, therefore, that this is the method to be employed, the home movie enthusiast might well turn his attention to an investigation of the means available to achieve easily and with a minimum of investment, the many flexibilities possible with the sound-on-disc system of sound accompaniment.

It will be assumed that the amateur is to record his own records on a machine of his own, although the suggestions as to technique to be followed in producing a recording might apply as well to having the records recorded at a commercial studio. Following our assumption, the amateur has the choice of several good machines now on the market, selling within the price range of the better sixteen millimeter silent projectors, capable of both recording and reproducing from "acetate" records.

The points of merit to be sought in buying a machine for this service are, first of all, a separable loud speaker which may be placed by the screen while the machine is used beside the projector in showing pictures. Secondly, the tone quality should thoroughly satisfy the user, both from records of speaking voice and music. The recorder should clearly cut and reproduce the sibilant quality in the spoken word. The sentence "Joe took Father's shoe bench out." should sound perfectly satisfactory. Sometimes a choice of microphones is available with these sets. The purchaser should select the one giving the best overall tonal results both when spoken into within two or three inches and from greater distances, say two or three feet. The recording machine should incorporate a volume indicator meter calibrated so as to show when the proper "loudness" of sound is being fed to the cutting device. A connection known as a "phonograph jack" should be available. This is a very handy accessory, the

use of which will be explained later. The phonograph jack should have its own volume control, separate from that of the microphone, or it should be combined with the microphone volume control so that as the control is turned the microphone is faded out and the phonograph jack is faded in. A snap switch to change from microphone to phonograph input to the recorder should not be employed to accomplish this transfer.

Next, the machine may or may not be equipped to drive the turntable at both of the two standard speeds now employed. One of these is 78 revolutions per minute while the other is 33⅓. The latter is usually available in addition to the former at slightly higher cost, but is soon paid for in prolonged playing time of the records recorded at this speed since they revolve more slowly and permit as much as ten or twelve minutes of sound to be recorded on a single side of a twelve inch record.

Lastly a check should be made to see that the recorder makes and reproduces records of music such that there is no apparent waver of tone or off pitch quality, and the record when first reproduced shows somewhat less hiss than an ordinary phonograph record.

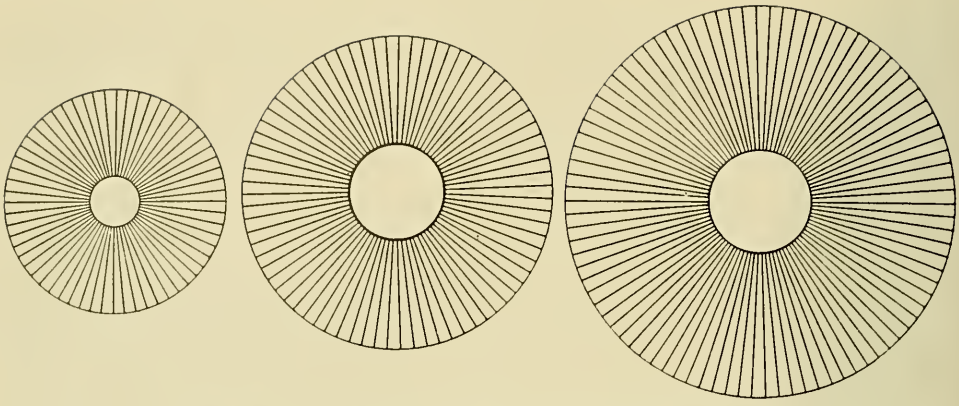
With such a machine at his command, the amateur movie maker is now in a position to make and play records as accompaniment for his films which will contain both descriptive voice and musical background. The music is best recorded onto the record containing the description by the use of a phonograph record player and regular music phonograph records, the record player plugging into the "phonograph jack" previously mentioned. Although music can be worked in throughout the film, the amateur may well experiment at first with recordings of voice alone, as accompaniment for some of his present pictures.

Let us select a travel picture as a typical example. The problem then is to make a record which will say the proper things at the right time, in order to describe or explain the scenes being projected. Although there are several different procedures which may be followed in recording an accurately timed record, the following system is perhaps the most practical for the amateur, all points considered.

If this picture has been heretofore run with a number of explanatory titles in addition to the main and closing titles, the former may be removed from the film. Next, procure pencil, paper and an electric clock with a full face sweeping second hand. Thread the projector, with the last frame of blank leader at the top of the gate. The projector speed control should previously have been adjusted to run as close to sixteen frames per second as possible.*

Now, with the electric clock set so that the minute and second hands are both pointing to twelve, start the projector and clock simultaneously. We will suppose the main title runs 25 seconds and is followed immediately by a spread of colorful travel folders, filling the entire field. A hand reaches in 7 seconds after this scene appears and picks up one of the folders, holding it up so that the

*The easiest way to assure an exact speed of 16 frames per second is by the use of a stroboscope disc and a small neon lamp. Reproduced on the following page are three stroboscope discs of 60, 75 and 90 radial lines respectively for different makes of projectors. The 60 line disc is to be fastened to one of the shafts of an "eight frame" sprocket, that is a sprocket that advances eight frames of film to one revolution. The 75 line disc is for projectors having "ten frame" sprockets and the 90 line disc is for projectors having "twelve frame" sprockets. If one of these discs is cut out, fastened to a piece of cardboard and mounted on the proper sprocket shaft, an exact speed of 16 frames per second is indicated when the lines appear stationary as viewed by the light of a neon lamp. A complete description of the use of stroboscope discs was published in the November, 1935 Cinema Section of CAMERA CRAFT.



From left to right, 60 line, 75 line, and 90 line stroboscopes.

caption, "Rainier National Park" may be easily read. This scene lasts an additional 8 seconds and is followed by a shot of an automobile being loaded with baggage, time, 9 seconds.

Starting the projector and clock together and marking the times indicated opposite a brief description of the scenes as they appear on the screen gives a cue sheet with exact timing for all scenes in the reel.

In the example above the cue sheet might read as follows:

TIME	*SCENE*
0:00	Title
25	Folders
32	Hand comes in
40	Car-luggage
etc.	etc.

It will be observed that the descriptions above are very brief—merely enough to identify clearly the length and sequence of each scene.

Having completed the timing of a reel by this method the projector and film can be set aside. Using the timing sheet just made up, a written commentary on the various shots may next be compiled. It is not necessary to time each shot with enough words to tie it completely to the beginning of the next. Such timing is difficult and often results in what appears to be an incessant flow of mechanical description which becomes somewhat monotonous after the first few minutes.

A typical commentary on the previously discussed subject might be written as follows:

TIME	*COMMENTARY*
0:00	
25	It's vacation time, 1939 and ideal weather for a trip. But where shall we go?
32	Here's an idea! (pause) "Rainier National Park."
40	Hand bags and suitcases, not to mention camera and film are all packed away . . . etc.

A script along these general lines, having been written for the entire reel, it is a simple matter to cut a record, using the electric clock to time the various cues. The record is then simply run off with the picture whenever it is projected,

the projector speed being varied slightly now and then if necessary to keep the two in approximate synchronism. The illusion of positive synchronization of sound and film is easily achieved with a little practice.

The procedure so far outlined has assumed that no music is to be introduced into the recording. The resulting record, while a definite improvement over a completely silent film, might be highly enhanced by the addition of some music, either as a complete background throughout the reel, or merely in connection with opening and closing titles. If the commentary is such that there are several pauses of considerable length occurring throughout the reel, a full musical background is desirable, inasmuch as it ties together smoothly the various divisions of script.

As previously mentioned, this music is best obtained by purchasing phonograph records of appropriate music and "dubbing" them onto the blank record at the time of recording the script. If a single control is used to fade from the microphone to phonograph, the phonograph record can be played on its record player and when the time for each script cue appears the control can be thrown over to the other side, thus fading the music completely and cutting in the microphone. If separate controls are used for phonograph and microphone, the microphone control can be set for the best volume and the phonograph control can be faded down whenever a cue for script appears.

If there are any changes to be made from one phonograph record to another, during the course of the reel, it is best to plan these changes so that they occur during the time of a cue while the script is being read. This may necessitate the assistance of a second person during the recording session. If the changes are numerous a supplementary script with cues indicated for music may be written and certain portions of records desired marked with white crayon.

Although the operations outlined above may seem fairly complicated, it must be borne in mind that the recording session is undertaken once only while the relative ease of projection where this method is employed compared to that wherein many records must be used each time a reel is projected is ample justification for the effort. Actually if two people are employed in making these records neither of them will at any time feel that he is being overburdened with duties. It is, perhaps, best to have one person do nothing but watch the clock and read his script at the indicated times, the other person being occupied with changing records, fading music in and out at the proper times and watching the volume indicator meter.

Questions and Answers

Question: Can interior movies be taken without special flood lights?

Answer: Yes. With an F:1.9 or F:1.5 lens and Super XX film, black and white movies may be made without special lighting almost anywhere there is good illumination for reading or other fine work. Theatrical performances, prize fights, indoor basket ball courts, and flood-lighted baseball diamonds usually have sufficient illumination for presentable movies. No exact exposure data can be given for these subjects and usually an exposure meter will be of little help because one can't get close enough to the subject. The only thing to do is to try a few shots with a wide open lens and see what you get.

"Sunset" *Maurice J. Schlatter*

First Award—Advanced Class

■ The very attractive emotional qualities of this picture are brought about by the fine decorative qualities which are evident in the nicely grouped trees, and by the fact that the mood of the picture is clearly evident and pleasing. Notice that the sky, which fits in very well, is of great help in this respect.

It seems to us that many photographers are prone to attach too much importance to print proportions as such. The making of most pictures requires some compromise in one form or another on the part of the photographer. When the choice lies between maintaining commonly accepted print proportions, or adopting a spacing which truly fits the subject matter but calls for unusual print proportions, we would always sacrifice print proportions. One of the soundest basis for judging all matters of picture arrangement is that the arrangement should grow directly out of the implications of the subject matter. To tie this thought down to the present picture, it seems to us that Mr. Schlatter has allowed rather more space than is necessary on the left, and we suspect (perhaps wrongly) that this is done in the interests of print proportions. Be that as it may, such horizontal movement as there is in this picture is the result of the curving of the trees toward the right, and this in turn means that the greater spacing from the group of trees to either edge of the print should be on the right rather than on the left. It is hardly possible to trim in on the left side enough so that such a spacing is established on the present print, since that gives the picture a crowded appearance which is unpleasant, because this material needs enough space about it to maintain the feeling of the great outdoors. It is probable that the negative does not include any more on the right, in which case about the best compromise would seem to be to trim in from the left until three telephone poles are eliminated. This still leaves slightly more space on the left than on the right, and consequently avoids even spacing at the sides, which would be undesirable. It does result in almost a square picture format, but we cannot see any disadvantage in that so long as the picture material fits the space.

Data: 11 x 14" bromide print.

Second Award

Advanced Class

"Cogitation"
Glen Fishback
Sacramento, Calif.

■ Here we see very fine clean photography. Expression and pose are beautifully caught, and the pose is well calculated to fill the picture space in interesting fashion. The very thorough-going naturalness of the pose and expression constitute the chief charm of the picture. It would appear that the subject was unaware that a picture was being made. But whether that is true or not, this print contains the virtues which are sought by means of the candid camera technique without the weaknesses which are usually associated with such procedure. There are no technical deficiencies here such as are often seen in "candid camera" exposures, and no awkwardness of pose, which is another quality often found in such pictures. There are some rather distracting elements in the picture, but with such a very strong central image, they do not assume any great importance. Ideally we might wish to eliminate the pole which projects above the fence just to the left of the subject's knee, and to fill in with shrubbery the sky area which carries down to the lower rail of the fence on the right.

Data: 14¼ x 18″ bromide print.

Third Award

Advanced Class

"Tenement Playground"
Dr. B. S. Kahn
New York, N. Y.

■ This picture is very interesting as a composition, but is technically rather weak. There should be better clarity of tone values and firmer definition throughout, if the real feeling of this material is to be presented with maximum effectiveness. Particularly there should not be the present falling off of definition toward the upper part of the print. It is interesting to look at this picture in the light of the ever-present controversy as to whether art may be propaganda and vice versa. It seems to us that the weakness of much of the social documentary work lies in its lack of good organization. That is to say, lack of good composition. Most of the work is technically excellent and is undoubtedly very effective as propaganda. It can hardly be denied by anyone that the artist is legitimately entitled to comment on society and its problems. The limitation which may properly be placed upon him is that he must make his social comment in aesthetically satisfying form. In short, his picture must be a good picture regardless of what else it may also attempt to be. Dr. Kahn's picture seems to us to be an example of such work.

Data: 8 x 10″ bromide print.

"Artist Burdette Morton"
W. Ellis Teas
Pasadena, Calif.

Fourth Award

Advanced Class

This picture is technically about as fine as it could possibly be, and that very superb technical quality has earned it a place with our judges in spite of the fact that the placing of the head in the picture space is bad. There does not appear to be any justification for placing the head so far to the left in the picture space. If the head were turned toward the right side of the print, and if the shoulder and the arm carried across, such a spacing would be possible. But as things are now, the head appears to be badly crowded against the left side of the print. A very important aspect of composition in portraiture is to arrange the pose so that the bust of the subject fills in the lower part of the print in satisfactory fashion. When the head is turned toward the camera as is the case here, it is almost always necessary to arrange the body so that it carriers entirely across the base of the print. When this is not done, we have a weak looking corner such as is now seen in the lower right.

Data: 4 x 5 Korona View; 5¼" Zeiss Tessar F:4.5; 1/5 sec. at F:32 on Eastman Panchro Press; developed in D-76; 11 x 14" print on Agfa Brovira glossy, unferrotyped.

"Picturesque Scene"
David A. Muramoto
Honolulu, T. H.

Fifth Award

Advanced Class

The geese are very nicely grouped here and the picture conveys the feeling of a peaceful, quiet countryside very beautifully. There is very rarely a situation in which the actuality and its reflection can be given equal space in a picture, for when that happens the two elements are too nearly equal in interest value and the space arrangements in the picture appear too mechanical. We find that difficulty in this picture, with the bank of the stream dividing the picture into equal halves. This can be corrected by trimming either from the base or from the top. We would prefer to trim away a little less than half of the upper portion of the print, and choose to trim from the top rather than the bottom because the foreground with its reflections appears rather more interesting than the upper portion, and because as things are, the sky area is a bit bright and tends to pull the eye upward rather unnecessarily. With this trimming, we would dodge in the remaining portion of the sky considerably so that this area does not have any strong pulling power. With this trimming the spacing is greatly improved and a much more satisfactory concentration of interest is achieved.

Data: 10¼ x 11" Gevaluxe print.

"Research" *John H. Vondell, Amherst, Mass.*

First Award—Amateur Class

■ This portrait is technically very fine indeed, and appears to us to be very expressive of the personality of the subject. We see here the neat, precise, orderly-minded scientist; manually skilled in the handling of delicate instruments, and endowed with the patience to carry out involved researches. When we can see and feel such things as this in a portrait, we know that the artist has been successful in his work. Fine use is made of the hands which are very well posed, and they help considerably to convey the character of the subject as has been indicated above. Care has been taken to keep the strong highlights under control. The one really dangerous one is just below the chin, but it is plain that Mr. Vondell is aware of this, for close inspection shows that it has been carefully toned down. Its proximity to the dark background gives it added strength by contrast, and it might be well to carry the toning down in this highlight just a little bit further.

Data: 9 x 12cm. Zeiss Ideal B; 5¼" Tessar lens; one second at F:9 on Agfa Super Pan Supreme film pack in Metol-Pyro D-7; 11 x 14" print on Agfa Cykora Kashmir Ivory in M. Q.

"Mountain Harvest"
Wm. A. Oberlin
Ventura, Calif.

Second Award

Amateur Class

This picture is quite obviously built on the beautiful and delicately varied leading line which moves through the picture in a sweeping S curve. The subtleties of the tone values which establish this line are particularly attractive. Notice also that a repetition of the line is suggested by the piles of hay which conform to its general movement. The dark foreground helps considerably to add depth to the picture and to give strength to the initial movement of the leading line. We do not feel that the placing of the team of horses is particularly happy. It would be better if the team were facing into the picture, for in that case they would add to and conform to the feeling of movement which the leading line sets up. In their present position (facing the camera) they work counter to the movement of the leading line. Ideally, the team might be placed slightly to the left of their present position and facing in the opposite direction or just beyond the point where the leading line turns sharply to the left.

Data: 2¼ x 2¼ Zeiss Ikonta B; 8cm. Zeiss Tessar F:2.8; 1/50 second at F:11 on Agfa Finopan in Edwal 12. Dark yellow filter; 8:30 a. m. in May. 11 x 14" print on Agfa Cykora Kashmir white in D-72.

"High Tide"
George Raeihle
Elmhurst, N. Y.

Third Award

Amateur Class

This picture presents a very nicely adjusted composition with the lovely swinging line of the foam leading the eye gracefully to the boat. Notice how the faintly seen bit of headland at the right checks the horizontal thrust set up by the lines of the waves and by the horizon line. We would like to see at least a faint suggestion of cloud forms in the sky to break up what is now a rather dull and uninteresting area. We are glad to see that Mr. Raeihle did not run the leading line of the foam exactly into the left corner of the print. This would have been a too obvious arrangement and not nearly as satisfactory as the present composition. Notice also how the bits of foam in the right foreground help to break this area up in very interesting fashion.

Data: 4 x 6.5cm. Ihagee Parvola; 7cm. Zeiss Tessar F:3.5; 1/100 sec. at F:11 on Agfa Super Pan Press in Champlin 16; 7:00 a. m. in October; 8 x 10" print on Agfa Brovira Velvet in D-72; slight printing in of sky.

Fourth Award

Amateur Class

"Boy"
Richard Wagner
San Francisco, Calif.

■ Mr. Wagner has caught an expression here which is most appealing. For our eye, the placing of the head is just a bit too far to the right in the picture space. We think that matters are improved if we trim about an inch and a half from the left and one inch from the base of the 11x14" print. This moves the head into better balance in the picture space, and also eliminates the line of the arm which runs to the lower left corner, and a part of the fuzziness which is now disturbing in the lower right. Somewhat greater depth of focus would of course be desirable in this shot, but in all probability it was made under difficulties so that this shortcoming is at least understandable.

Data: Series D Graflex; Zeiss Tessar F:4.5; 1/20 sec. at F:4.5 on Panatomic X in DK-20 with K2 filter; 11 x 14" print on Defender I in D-55.

Fifth Award

Amateur Class

"Persian Princess"
A. S. Mawhinney, A.R.P.S.
New Rochelle, N. Y.

■ Here we find a very lovely high key effect with the darks of the eyes providing just the proper amount of accent to make the whole thing sing. It seems to us that the light from the right is just a bit too strong, so that there is a loss of highlight detail on that side of the cat's head and in the large area of white drape in the lower right. This also causes the drape to come up rather strongly in the picture. We think that the pose is particularly good here, conveying both the dignity and grace of an exceptionally attractive animal.

Data: Leica 90mm.; Elmar lens; 1/40 sec. at F:6.3 on E. K. Panatomic film in G.D.X. by artificial light; 11 x 14" print on Tuma Gas, partially toned.

Monthly Competitions

Scoring for Club Trophy Cups

The following won prizes for their clubs in the Advanced Class: Dr. B. S. Kahn, for the Manhattan Camera Club; Maurice J. Schlatter and W. Ellis Teas, for the Pasadena "Y" Camera Club; and Glen Fishback, for the Signa Phi Nothing.

The following won prizes for their clubs in the Amateur Class: John H. Vondell, for the Amherst Camera Club; A. S. Mawhinney, A.R.P.S., for the Miniature Camera Club of New York; and Richard Wagner, for the Photographic Society of San Francisco.

The following prize winners have no club affiliations: David A. Muramoto, William A. Oberlin, and George Raeihle.

Contributing Clubs

Amherst Camera Club (Mass.)
Aremac Camera Club (San Francisco)
Boulder Lens Club (Colo.)
California Camera Club (San Francisco)
Camera Clique (Denver, Colo.)
Camera Club of Richmond (Va.)
Dallas Pictorialists (Texas)
Detroit Camera Club (Mich.)
E.P.I.C. Pool of San Francisco
Fort Dearborn Camera Club
Fotoklub Zagreb (Jugoslavia)
Gary Works Camera Club (Ind.)
Green Briar Camera Club (Chicago)
Light & Shadow Club (San Jose, Calif.)
Los Hidalgos (Pasadena, Calif.)
Manhattan Camera Club (N. Y.)
Marin Camera Club (Calif.)
Miniature Camera Club of New York
Miniature Camera Club of Oakland (Calif.)
Missoula Camera Club (Mont.)
Pasadena "Y" Camera Club (Calif.)
Photographic Society of San Francisco
Pictorial Camera Club of San Antonio (Tex.)
Pictorial Fellowship of Long Beach (Calif.)
Queen City Pictorialists (Cincinnati, Ohio)
Riverside Pictorialists (Calif.)
Rothschild Camera Clinic (Calif.)
Shutterbugs (Knoxville, Tenn.)
Sierra Camera Club (Sacramento, Calif.)
Signa Phi Nothing (Sacramento, Calif.)
Silv-O-Lite Camera Club (Goshen, Ind.)
The Specialists (Hollywood, Calif.)
Telephone Camera Club of Manhattan
Trona Camera Club (Calif.)
Utica Camera Club (N. Y.)
Yellow Springs Camera Club (Ohio)

STANDING OF CLUBS

Large Clubs Advanced Class

Pasadena "Y" Club	7
Manhattan Camera Club	3

Small Clubs Advanced Class

Signa Phi Nothing	4

Large Clubs Amateur Class

Amherst Camera Club	5
Photographic Society of San Francisco	2
Miniature Camera Club of New York	1

Small Clubs Amateur Class

No score.

THE CAMERA CRAFT MONTHLY COMPETITIONS—EXPLAINED

It is well to understand at the start that the rules governing these competitions are purposely kept at a minimum, so that the competitions may be open to all without red tape and without complication. A competitor may take whatever action he desires that is not specifically denied by the rules. CAMERA CRAFT makes no copyright claim to the pictures which win awards, and their makers are entirely free to do with them as they wish. Do not bother to wonder if you may do this or that. You have complete liberty of action, provided only that you observe the few simple rules given below.

Rules

■ Anyone may enter. You are *not* required to be a member of a camera club, a subscriber to CAMERA CRAFT, or anything else. No entry fees. No entry blanks. No restrictions on size, or number. Mounts are not required.

■ There are two classes, "Advanced" and "Amateur." These groups are judged separately, with five awards in each class, ten awards in all. The ten winning prints are published in CAMERA CRAFT each month.

■ Prints must have maker's name and address and the class in which they are to be entered (whether "Advanced" or "Amateur") plainly marked on the back of each.

■ Prints shall be returned only when stamps sufficient to cover are enclosed with the pictures. Do not send stamps under separate cover as it is possible they may not be connected with the identity of the sender or prints.

■ Prints may be in black or sepia but tinted and painted photographs are barred.
■ Prints must be in before the 1st of each month to be entered in the succeeding month's competition.
■ Prints winning prizes cannot be returned.
■ The object of the two classes, Advanced and Amateur, is to insure that individuals shall compete on as even terms as possible. Compare your prints with those shown as prize winners in the two classes, and decide with which group your pictures would most fairly compete. If in doubt enter first in the amateur class and then if successful move up to the advanced class. In order to insure fairness and an equal chance to all, the judges reserve the right to move prints into the advanced class if the quality of the pictures seem to justify this.

Awards—Advanced Competition

First: $10.00.
Second: $7.50.
Third: One year's subscription to CAMERA CRAFT.*
Fourth: One year's subscription to CAMERA CRAFT.*
Fifth: One year's subscription to CAMERA CRAFT.*

Awards—Amateur Competition

First: $7.50.
Second: $5.00.
Third: One year's subscription to CAMERA CRAFT.*
Fourth: One year's subscription to CAMERA CRAFT.*
Fifth: One year's subscription to CAMERA CRAFT.*

*May be presented to a friend or divided and presented to friends at this or holiday time.

Technical Data

We request that the technical data accompany each print submitted to the competition. A complete technical description should cover the following points: Size and make of camera, make and focal length of lens; exposure time and aperture used; negative material; negative developer; filter; light source; (if artificial, the number of lights and the wattage, if outdoors, the time of day and the month); paper; print developer; special treatment. By "special treatment" we mean, any manipulation or procedure that is not covered by the above.

Mailing

Parcel Post is generally cheaper but Express is safer. Cost of Express begins to equal Parcel Post when package weighs more than a pound and must travel more than 500 miles.

Name and address may appear on the back of prints shipped by parcel post but no additional written matter, such as technical data. Place technical data in ordinary letter envelope, address envelope, place a 3c stamp on it and then paste to front of package of prints. The package of prints will then be mailable at parcel post rates. This restriction concerning written matter on the back of prints does not apply to Express.

Club Trophy Features of the Competitions

Four Trophy Cups will be awarded to clubs making the best record in the Camera Craft Monthly competitions each year. Awards will be made on the following basis:

1. Clubs will be divided into two groups—large and small—on the basis of membership, and identical awards will be made to each of the two groups. This is to make sure that competing clubs will be of approximately the same size. Large clubs will be those whose membership is over 40. Small clubs are those with membership of 40 or less.
2. The four awards are as follows:
   (a) To Large Club making highest total score in the Advanced Class.
   (b) To Large Club making highest total score in the Amateur Class.
   (c) To Small Club making highest total score in the Advanced Class.
   (d) To Small Club making highest total score in the Amateur Class.
3. Points in each of the four divisions, Large and Small Clubs, Advanced and Amateur Classes are as follows:
   5 points for First Award, 4 points for Second Award, 3 points for Third Award, 2 points for Fourth Award, 1 point for Fifth Award.
4. Each club has the opportunity of competing for two cups. One in the Advanced Class and one in the Amateur, but individuals within the club cannot enter in both classes. Individuals may choose the class in which they wish to compete, but the judges reserve the right to change entries from the Amateur to the Advanced Class if the quality of the work seems to warrant it.
5. No individual can earn more than 15 points for his club.
6. *It is well to understand that the conduct of this competition is in nowise changed by the addition of these annual club awards. Judging is still entirely on the basis of the individual print, and those who are not club members have the same chance of winning awards as formerly. The only difference is that now if a prize winner is a member of a club, his club will be credited with the proper number of points allocated for that prize.*
7. Scoring for these cups begins with the January Competition, prints for which must reach this office on or before December 1st. It runs for 12 months concluding with the December

competition. Prints for each succeeding competition must reach this office on or before the 1st day of the preceding month.

8. Club name, maker's name and address, technical description of print and class in which it is to be entered must accompany each picture.

What a Club Should Do

- Study the rules which appear on this page and the rules governing the competition in general which appear above.
- Appoint a committee of one or two whose sole duty will be to collect and forward prints *each* month and on *time*.
- Divide your membership into two groups, one to compete in the Advanced Class, the other in the Amateur. It is not required that a club compete in both classes.
- Be sure and send each month as it is the total score that wins.

Prize Winners Widely Exhibited

The winning prints in these competitions are made up into Traveling Salons and circulated for exhibition and study to Camera Clubs throughout this country. At present 140 clubs are receiving these shows so we feel entirely safe in saying that these pictures receive a wider exhibition than is possible by any other means.

IN REPLY TO QUESTIONS

1. There is no rule against entering a print in the competitions more than once, providing it has not won an award.

2. Either clubs or individuals may send a batch of prints in one package and have two or three entered each month, the group being returned when all prints have been entered. When such procedure is desired a covering letter should be sent, and the sender MUST mark on the back of each print the month in which it is to be entered. Camera Craft will not take the responsibility of selecting which prints from a group are to be entered in any given competition.

What Is Your Photographic I. Q.?

To formulate the correct answers to your Photographic I. Q. quiz for the month it is necessary that you associate certain photographic names or things as given in each of the following statements.

Check the square which, to the best of your knowledge, indicates the correct answer. Then turn to page 53 to determine your score. The perfect score is 100%; deduct 10% for each error. Excellent rates 90%; very good, 80%; good, 70%; fair to bad, below 70%.

1. Mention of the following, sodium thiosulphate, H_2O, and two liters indicates which one of the following:
   - ☐ Fixing bath
   - ☐ Sepia toner
   - ☐ Developer
   - ☐ Negative reducer
2. If you overheard someone talking about a claw or shuttle, together with intermittent movement, it could be assumed that the subject being discussed is a:
   - ☐ Miniature camera
   - ☐ Movie projector
   - ☐ Focal plane shutter
   - ☐ Exposure speed
3. All of the following abbreviations, grs., oz., and drm. are used in the:
   - ☐ Fluid measure
   - ☐ Avoirdupois measure
   - ☐ Metric system
   - ☐ Apothecaries measure
4. The following chemicals, sodium carbonate, sodium hydroxide and potassium carbonate, have one thing in common inasmuch as they all are:
   - ☐ Accelerators
   - ☐ Developers
   - ☐ Preservatives
   - ☐ Restrainers
5. Paper speed, negative density, intensity of printing light, and color, if any, of the negative, are referred to as:
   - ☐ Print qualities
   - ☐ Negative scale
   - ☐ Contrast range
   - ☐ Exposure factors
6. When working for low contrast and fine grain film development, one of the following named formulas should immediately come to mind:
   - ☐ D-82
   - ☐ D-76
   - ☐ D-72
   - ☐ DK-50
7. The association of the following three words, element, barrel and stop, will immediately bring the following subject to your mind:
   - ☐ Camera finder
   - ☐ Compur shutter
   - ☐ Trick movie shot
   - ☐ Lens
8. What do the following numbers suggest to you—50, 85 to 90, and 135 mm.
   - ☐ Exposure factors
   - ☐ Focal length of lenses
   - ☐ Weston film ratings
   - ☐ Negative sizes
9. Scheiner, DIN, and H. and D., are applicable to which one of these:
   - ☐ Tripod brands
   - ☐ Bromide papers
   - ☐ Film speed ratings
   - ☐ Color spectrum
10. The following letters, A, B, E and G, should bring to mind something that most photographers use, namely:
    - ☐ Paper contrasts
    - ☐ Chemicals
    - ☐ Lenses
    - ☐ Filters

Correspondence*

What Is Good Photography?—(Continued)

Dear Sirs:

The tranquil Autumn air of the mountains is a good counter-irritant to the steaming mood of the section of Correspondence of the December CAMERA CRAFT. Nobody seems to be accomplishing anything, but the incubation of hard feelings — and nobody seems to have made any attempt to get down to unemotional facts in his protestations. Far be it from me to pose as an arbitrator, or an oracle, or a catalyst—but I cannot evade adding a few words with the hope—however forlorn—that they will serve as oil upon the foaming waves.

In the first place, no less an authority in art than Arthur Pope once said to me, "the artist should never write about his art"—and he is entirely right. The artist speaks in terms of his medium; transcription of his ideas in words are almost always inadequate and misleading in the most precise sense. We all write too much, speak too much, preach too much. It would be better if we just said what we have to say in photography. After all, we are photographers; if our work has "what it takes" it will not need the embalming of words to perpetuate it. Let the critics—the professional critics—fuss with the winding sheets.

All of us, perhaps, know this, but we **will** keep right on writing and lecturing, and giving our colleagues soul-shattering Bronx cheers via the "letters" column.

What I am really getting at is this: Weston writes something, Partridge writes something, I write something. So what? We can all make better photographs than we can write about them. If we can't express our principles of photography in our photographs we certainly cannot express them in our writings on photography. I believe that we do not need any justification in type for our adventures in silver. Presumably we are all afraid of something. I am probably afraid that some spectator will not understand my photography—therefore I proceed to make it really less understandable by writing defensiby about it. All I can do in my writings is to stimulate a certain amount of thought, clarify some technical facts and "date" my work. But when I preach "sharpness," "brilliancy," "scale," etc., I am just mouthing words, because no words can really describe those terms and qualities—it takes the actual print to say, "here it is." If I want to get into an argument with Mr. Mortensen, and vice versa, we can do it best by jousting with our photography, rather than with our pens. I am sure Mr. Mortensen would agree with me in this. But we both do a lot of writing!!

Weston is one of my closest friends, but I must say in all frankness that one of his photographs says more about him and his photography than fifty pages of text he might produce. What he writes about photography in the Encyclopedia Britannica—an objective treatise on the art—is something else. I refer to writing about one's own work, or jousting for one's own "school." Partridge is an excellent artist—a superb etcher, and exceedingly well versed in the principles of all the arts. He has taken up photography apparently to say something he was unable to say in the other media. He has done some very good things. He would be the last one to call himself a **great** photographer, and there is nothing about his writings to indicate conceit. He is enthusiastic about the art, and he is giving us an expert opinion. I do not agree with all he says, but I certainly admire his discussion-provoking statements. But, you see, his writing serves to make some people think Partridge is posing as an ultimate authority—which is not so.

I have certainly laid myself wide open many times, in speech and writing, to all sorts of tomatoes, orchids and good solid bricks. Probably I deserved all of them—especially the last. I gave a little talk before a camera group the other evening, and the sum total of my accomplishment seems to me to have been:

1. I inadequately re-stated what I have already said in my pictures.

2. I did not give any real constructive technical ideas.

3. I irritated a lot of people, and added one more degree of confusion to an already hopelessly involved subject. I feel that there should be a Society for the Perpetuation of Plain Simple Facts—and let it go at that. But I will probably continue to give talks and produce pages of text; the itch to preach exists as an all-consuming fire in practically everyone.

The name "F64" has certainly been misinterpreted, maligned, glorified, abused, and most generally misunderstood. The "Group F64" was loosely formed of several photographers—mostly professionals—to act together towards the strengthening of clean photographic thought and production. "F64" was never intended as a strict literal descriptive term. How many people who wrote and talk about "F64" really know about it—what the Group was—who were the artists comprising it—what they actually did? Believe me, a diamond-sharp glossy print does NOT represent "F64" unless there is that most-important-something-else in it — the quality of art in perception and execution. This statement is totally without meaning to those who do not know what "the quality of Art in perception and execution" is. And they never will know, in spite of Mr. Weston, Mr. Partridge, and Mr. Adams, and all their writings, unless they truly **want** to know—to venture forth from the safe ritualistic shelter of the commonplace and look for themselves.

If "F64" means a pedogogic inflexible sys-

*Readers are requested to add a postscript to letters intended for this department, expressly granting permission to publish, **and are urged to write as briefly as possible.**—Ed.

tem of thought and action, then I am through with it completely. But if it signifies an **attitude** towards a clean, straightforward approach to photography, I am all for it. The latter is what it was supposed to be; but a lot of people are trying to break it down into a mere technical aspect-habit.

The beauty of a photograph by Weston does not lie in the assortment of facts about negative material, papers, developers—it lies in the realization of his **vision.** And I believe his vision is in perfect relation to the medium of straight photography.

What we have to say is infinitely more important than our mechanical means of saying it. On the other hand, if we cloud our message with poor techniques, shallow taste, and inflexible method we are not going to get very far. We have to inquire within ourselves and forget taboos along with ivory towers.

Mr. Douglas is wrong in saying that the Group "F64" school is related to the "1890 school." It bears a much closer relationship to the 1860s and the 1870s and what those decades produced in straightforward photography. He forgets one terribly important thing—the **style** of the early days is one thing, and the aesthetic intentions (or lack of them) of the early photographers, another thing.

I humbly refer you all to Alfred Stieglitz. Mr. Stieglitz' spectrum of accomplishment is greater than that of all of us put together. Stieglitz would never say that certain objects of the world were more or less beautiful than others—telegraph poles, for instance, compared with oak-trees. He would accept them for what they are, and use the most appropriate object to express his thoughts and convey his vision. I think Mr. Loeber is right in his denouncement of "exalted rubbish." But he does not state that it is only "exalted rubbish" when the photographer considers it so. Factual rubbish is considered vile because of connotations and convention. It is very dangerous to start off with hazy definitions. No photograph of Stieglitz' is **ugly**—every subject employed is transmuted into an expression of beauty—but true beauty does **not** mean mere **prettiness.**

Mr. Partridge's prophecy of the future of photography frankly irritates me, simply because no one can possibly tell which way human expression is going—except to be reasonably sure that the pendulum will continue to swing. But I believe many people, Mr. Loeber included, misinterpret **discussion** as **final dictum.** I know Mr. Patridge has no intention of Hitlerizing photography; but I am not so sure that some of the "Old Guard" would not "liquidate" a lot of contemporary work if it had the opportunity to do so. Even photographers are protected by the Bill of Rights!

Believe me, the Purist (awful term) is really trying to get photography out of pigeon-holes, rather than **in** them, as Mr. Forrester believes they are trying to do. Well, "Ye who are without sin . . ."

Cordially,

ANSEL ADAMS.

Yosemite Valley, Calif.

Dear Sir:

I have seen most of Roi Partridge's photographs which have not gotten themselves into his darkroom ash barrel. As I remember, there was no print of telegraph poles, ash barrels, fire escapes or of any garbage, inspired or dormant.

I have never photographed such rubbish subjects either, (except once, excuse me, please, I did photograph the contents of what is known on the Sierra Club "high trip" as the chickie pail). Yet Roi likes my work enough to have given me two shows at Mills College gallery.

I would like to add the following random opinions which are not connected but which occur to me in the order stated.

Since the pathway of civilization is so strewn with symbolic tin cans, ash barrels, etc., these may well be used in pictures of a sarcastic nature. Contrasted with natural beauty or vastness, telegraph poles can be made to speak eloquently of man's mastery or insignificance, etc. The textural and design quality in these pictures is not to be haphazard, though stereotyped rules are less important than the inherent dictation of the subject. Texture and design may greatly intensify the mood.

Intensity of expression, to remain fine, must keep within the bounds of many things, including sincerity, rationality, restraint. Just think a moment of Fritz Kreisler. Schmaltz is a dangerous commodity, at best.

Since diversity of temperament and intelligence exist, why not avoid the friction of too much getting together, but let each gang enjoy itself in its own hell-bent direction. I am going to mention a few of the things definitely jeopardized by too much concern about other people's thinking and doing.

In defining for myself, "What Is Photography," I would say it is one of the many mediums of art which as a whole is propaganda, beyond creed or politics, which helps in feeling and in a sense in being, any subtle external qualities of reality or beauty. Which helps us keep alive in the mood of them.

It is difficult to hold clearly, the vision of one's response to these qualities inherent in what we photograph. It is difficult to be able to act serenely and instinctively, upon inner conviction, so that whatever theories have been assimilated will begin to live, as they return through these mysterious processes. The need of this sort of process is kept too little in our awareness, and is apt to fade out completely if too much photographic warfare is indulged in.

To many of us, Roi Partridge's article expresses very well what good photography is. From all the squeals arising, one realizes how many toes have been stepped on, also the state of tolerance of the owners of said toes. I believe the owners of other kinds of toes have kept fairly quiet under the inundation of so much foreign to their feelings.

I would have liked the Partridge article better if it had been simpler and less belligerent. But he has belligerent eyebrows and has to be that way. And we mustn't hold it against him that he has had to be a professor. Considering that, he has simplified quite remarkably. The opportunity is rare for photographers to know opinions of so recognized an artist, who has given his life to art teaching, who is sympathetic to and has worked so successfully in, photography, and who is in a position to do some

real writing on this subject. His article has certainly proved stimulating.

CEDRIC WRIGHT

Berkeley, Calif.

Dear Sirs:

I write to defend "exalted rubbish," as Mr. Loeber terms the results of following such principles and ideals as Mr. Partridge set forth in his recent article. I could never hope to read a more straightforward and inspiring discussion than Mr. Partridge's, and I entirely agree with Mr. Douglas when he says that it should be preserved for future generations, but my reasons differ!

This "exalted rubbish" is badly in need of understanding. If we would only try to do just this, we would soon find out that it has much to teach us, things which are a large part of the reason why worthwhile pictures are worthwhile. In the latter, the basic principles of design and organization are present, to be analyzed and quickly seen by those who are aware of such things, to be felt by and to act as an unconscious influence on those who are not. The artist knows why a certain picture appeals to him, the layman does not, but is nevertheless attracted to it. He may think it is the sparkle of the water which he likes in that advertisement, but the artist knows that it is the sweep in the curved line of the wave which gives the picture its force and appeal.

For those of us who are constantly striving to make better pictures, it is not enough to master technical routines. We must also understand these other important fundamentals which are timeless. There is no quicker way to do this than by studying abstract art. Then we will realize that this so-called "exalted rubbish" isn't so queer and meaningless as it has seemed to us in the past, and we will see how much better we could have made that landscape or picture of our pet which we thought were just about tops at the time! Then, also, will we begin to find pleasure in a picture which depends solely on its line, form and texture, and not subject matter. For these three, instead of being a limitation of "the artistic creative photographic elements," as Mr. Forrester feels they are, these three are the whole world we live in. What more could we ask to express ourselves with?

Sincerely,

DORIS VARNEY

Oakland, Calif.

Dear Sirs:

In one or two of his letters to your magazine and in his article in your November issue entitled, "What Is Good Photography?" Prof. Roi Partridge indicated his belief that photographers are thin-skinned and belligerently set in their beliefs. In fact, in his article he stated:

"One wonders if there is any group of individuals in any occupation who are more emphatic in believing what they believe while they are believing it than are photographers."

Reading his letters and his article, I thought that Prof. Partridge was over-critical of photographers but, reading the flood of letters which his article evoked and of which you apparently printed only a few, I think perhaps the professor is right and we are an over-sensitive, opinionated lot.

After all, the man made it plain in the beginning that he was only setting forth his own opinions, which he certainly has a perfect right to do. Why should he be jumped upon for that?

Most sincerely,

JACK WRIGHT

Dear Sirs:

No doubt Mr. Roi Partridge is a very charming gentleman and an extremely fine etcher, but I think his article in the November Camera Craft "What Is Good Photography" is highly debatable and needs some comment. Let me say before starting, however, that this paper opposing his article is about principles not individuals.

Just why Mr. Partridge condemns soft-focus lenses, bromoil, gum, and rough papers as not being photographic is hard to comprehend. A picture which was made with a soft-focus lens and printed in the gum-pigment process on a rough paper, **can** be just as truly a form of photographic expression as a picture made with an anastigmat lens used at F:64 and printed on glossy paper. To condemn the soft-focus lens as unphotographic is just as foolish as condemning an anastigmat lens just because the eye doesn't see objects with anastigmat definition.

As far as trying to imitate another art, I quite agree that the worker is just throwing away the full advantages of photography, that of rendering the exquisite, subtle gradations of light on surfaces. Of all the graphic arts, photography alone can depict it; all the rest suggest it. But these gradations can be reproduced as well in gum, platinum, carbon, bromoil, or Fresson, as on glossy paper and definitely more beautifully.

If this is doubted, a good way of being convinced is to look at some of the work of Paul L. Anderson, (whose work includes platinums, gums, bromoils, Fressons and carbons), Clarence White (platinums), J. Ortiz Echague, (Fressons), Leonard Missone, (oils), Gertrude Kasebier, (gums and platinums) and many others, most of whose work was largely platinum. And platinum has a far longer scale than the finest glossy bromide in existence.

A platinum print made on a good paper stock has all the beautiful quality, though, please note, not necessarily the appearance, of a fine etching. And any one who has seen a good quality etching can deny that it is not far superior to a glossy bromide.

For press work, for reproduction, or for scientific work, where the utmost in detail is essential, glossy paper has its advantages. But in pictorial art we aren't concerned so much with detail as we are with masses, composition, suggestion, mystery, values, subordination, unity and harmony.

Any work of art surely deserves to live, and glossy bromide paper or any silver paper for that matter, is very definitely, not permanent. On the other hand, platinum gum, bromoil, carbon and Fresson are far, far more permanent than silver papers; in fact, nothing short of destruction by fire will prevent them (gum, etc.) from living through the ages just as any oil painting or charcoal drawing. Incidentally, there were recently found some charcoal drawings which were over 10,000 years old.

The reason silver papers have become

so popular is because the thousands who use a camera for record purposes needed a process by which prints could be turned out with great rapidity and manufacturers accommodated them with rapid silver papers which is excellent for their purpose. But those who were trying the more serious (creative?) photography soon adopted this method of making prints and thereupon sacrificed quality for quantity, and, rather than make one outstanding picture in four or six months, were turning out scores of mediocre ones.

A few of the finer pictorialists however, stuck to their guns and continued to cling to the more beautiful processes and turn out prints of rare beauty. The most outstanding example being Mr. Paul L. Anderson, whose work cannot be mistaken for anything else but honest-to-God photography, who was satisfied with turning out three or four prints a year, prints which in my opinion, could be hung in any art museum in the world and yet do honor to the museum. His prints were so lovely in the rendering of gradations that I've known observers to stand in awe at their exquisiteness. A glossy print compared to Mr. Anderson's platinum prints, gum prints, and others, is like comparing a newspaper portrait to a fine painting. Anyone who wishes to see the advantages that photography offers can do no better than see Mr. Anderson's prints, if at all possible. He used all the beautiful control processes spoken of, in some cases used paper negatives to print from, yet there is not the slightest trace of high-lights or shadows in absurd places which could never be found in Nature. He modified his negatives or prints when he couldn't express his ideas otherwise, but the hand-work cannot be in the least detected and his prints thoroughly retain their grand photographic quality. Can this be condemned?

We cannot always find in Nature scenes or the like, which we may entirely use to express our ideas and it becomes necessary for us to resort to control so that we can, but as long as the hand-work cannot be distinguished in the print, I think that it is not only all right, but the **only** thing to do. Of course we should maintain the full advantages of photography in doing so, and any imitation of the other arts is nothing short of an abortion and anyone doing so is foredoomed to failure, but there is no reason why control cannot be used and yet the photographic quality still be maintained.

And if toning a print sepia, or blue, or brown, will better help us to express our ideas then there should be no reason why we should not resort to toning, although I readily agree that **colored** prints have no place in **pictorial** photography.

I cannot see why a microscopic technician who possesses a microscope capable of magnifying 1500 diameters should always use its full power, especially if he only wanted magnification of 500 diameters, any more than a person who owns a car capable of going 90 miles an hour, should always drive at that speed. To always use an anastigmat lens at f:64 and print on glossy paper would be as foolish as a musician to always compose in the key of C or a painter to use only carmine pigment. The choice of lens and printing medium is only a question of what the artist wishes to say.

I do not think it is necessary in photography to try and duplicate Nature's lights and darks. It is probably beyond the capacity of any artistic medium to accurately reproduce them. It is, however, fully possible to secure a satisfactory **representation** of the **relative** values and thereby obtain the desired suggestion. It isn't even necessary to utilize the full scale of the paper, for if the values are correctly adjusted among themselves the effect may be equal to one in which the full scale of the paper is used, and from a pictorial standpoint the result may even be better.

After having gotten all that off my chest may I add that although I didn't entirely agree with Mr. Partridge's article, I did thoroughly enjoy reading it and hope to read more of his articles in the future. Any article which causes discussion (I am sure it must have) is indeed, a good article. I should also like to read other comments both pro and con about the article. . . .

Most sincerely yours,

CLARENCE W. KOCH.

Cincinnati, Ohio.

Club Notes

Forthcoming Exhibitions

First Annual Boston International Salon of Nature Photography. 234 Berkeley Street, Boston, Mass. Closing date December 31, 1939. Entry fee $1.00, limit four prints. February 1 to 15, 1940.

Second Valley of the Sun Photographic Salon. Address Odus Flinn, Chairman, 1311 E. McKinley, Phoenix, Arizona. Closing date January 1, 1940. Entry fee $1.00, limit four prints. February 1 to 28, 1940.

Annual National Salon of Photography, under the auspices of the Yonkers Camera Club. Address Salon Committee, c/o Chairman Hubert L. Swapp, Y.M.C.A., Yonkers, New York. Closing date January 6, 1940. Entry fee $1.00, limit four prints. January 16 to 31, 1940.

Seventh Wilmington International Salon of Photography. Address Miss Muriel E. Place, Secretary Salon Committee, P.O. Box 981, Wilmington, Delaware. Closing date

January 12, 1940. Entry fee $1.00, limit four prints. February 5 to 25, 1940.

Seventh National Collegiate Salon of Pictorial Photography, sponsored by the University of Wisconsin Camera Club. Address Jerome Saeman, Salon Chairman, University of Wisconsin Camera Club, Memorial Union, Madison, Wisc. Closing date January 12, 1940. Entry fee $1.00, limit four prints. Open to the faculty and students of any institution of collegiate grade.

Fourth Virginia Photographic Salon, under the auspices of the Camera Club of Richmond, Inc. and the Virginia Museum of Fine Arts. Address Miss Marie D. Powell, Secretary Salon Committee, 1714 Park Avenue, Richmond, Virginia. Closing date January 23, 1940. Entry 25c per print with a minimum of $1.00, no limit on the number of prints to be submitted. January 27 and 28, 1940.

Seventh International Salon of Photography of the Pictorial Photographers of America. Address Ira W. Martin, Salon Director, 10 E. 71st St., New York, N. Y. Closing date February 1, 1940. Entry fee $1.00, limit four prints. March 6 to 29, 1940.

Second Annual Youngstown Camera Club Salon. Address Salon Manager, R. M. Eickmeyer, 17 N. Champion St., Youngstown, Ohio. Closing date February 10, 1940. Entry fee $1.00, limit four prints. February 18 to 28, 1940.

Fifth Annual National Salon of Pictorial Photography of the St. Petersburg Camera Club. Address Homer Agee, Salon Chairman, 205 Seventh St. South, St. Petersburg, Florida. Closing date February 15, 1940. Entry fee $1.00, limit four prints. March 4 to 18, 1940.

Third Annual Competition in News and Pictorial Photography, sponsored by the Department of Journalism at Kent State University, Kent, Ohio. Address Prof. A. Clarence Smith, Kent State University, Kent, Ohio. Closing date February 15, 1940. Entry fee $1.00 in each division, limit four prints.

Forty-first Annual Photographic Salon, under the auspices of the Photographic Section of the Portland Society of Art. Address Bernice Breck, Secretary, Portland Society of Art, 111 High St., Portland, Maine. Closing date March 11, 1940. Entry fee $1.00, limit four prints. April 7 to May 5, 1940.

Third Salon of Photography of the Camera Club of Fitchburg. Address Secretary Elsie L. Lowe, Pearl Hill Road, Fitchburg, Mass. Closing date March 15, 1940. Entry fee $.50, limit four prints. April 1-30, 1940.

1940 Baltimore International Salon of Photography. Address J. S. Rowan, Salon Secretary, 2315 Homewood Ave., Baltimore, Md. Closing date April 8, 1940. Entry fee $1.00, limit four prints. April 19 to May 5, 1940.

7th International Salon of Milwaukee. Address A. P. Bellinghausen, Salon Chairman, c/o Milwaukee Art Institute, 772 N. Jefferson St., Milwaukee, Wisc. Closing date April 10, 1940. Entry fee $1.00, limit four prints, 6 color slides. May 2-15, 1940.

New Jersey National Salon of Photography—1940. Address Salon Committee, Orange Camera Club, 1 South Clinton St., East Orange, N. J. Closing date April 15, 1940. Entry fee $1.00, limit four prints. May 15 to June 15, 1940.

First Toledo International Photographic Salon. Address Carl F. Reupsch, Salon Chairman, Toledo Museum of Art, Toledo, Ohio. Closing date April 17, 1940. Entry fee $1.00, limit four prints. May 5 to June 2, 1940.

Third Rocky Mountain National Salon of Photography. Address Russell F. Heckman, Secretary, 1429 Marion Street, Denver, Colorado. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 1 to 14, 1940.

Ninth Detroit International Salon of Photography. Address Detroit Institute of Arts, Detroit, Michigan. Closing date May 15, 1940. Entry fee $1.00, limit four prints. June 4 to 30, 1940.

The Camera Clique of St. Louis, Mo., recently held their Annual Exhibition of members' prints, at the St. Louis Public Library. Ninety-two photographs were exhibited and a large number of visitors attended the three-week showing.

The Los Angeles Camera Club, 2504 W. 7th St., Los Angeles, Calif., are exhibiting the Fifth Annual Zeiss Ikon Show, during the month of December, and a one-man exhibition by Carl Schierholtz, midwest pictorialist. The Developer, club bulletin, also announces that these exhibitions will be open to the public from 12 noon to 9:00 P.M. daily.

The second semester of the School of Photography of the Metropolitan Camera Club Council will begin Jan. 15, 1940. Two new courses will be offered this semester: Commercial Retouching by Edward Alenius, F.R.P.S., and Press Photography by Roy Pinney. Circulars are available on request to The Metropolitan Camera Club Council, 106 W. 13th St., New York City. The Council also reports that the group now includes the surprising total of 86 member clubs.

The Photographic Society of America, 10 Park Ave., New York City, opens its 1940 drive for new members with the announcement of a $25.00 prize that will be awarded to the member who brings in the most new members during the year. Points for new memberships will be scaled up according to type of membership taken. Write the above address for complete details.

The Editors of "Modern Photography 1940-41" announce that prints are now being assembled for the new edition of this popular photographic annual. As the annual will appear in the Spring of 1940 instead of in the Fall, entries must be received not later than Jan. 15, 1940. All photographers are invited to submit prints and they should be sent to The Studio Publications, Inc., 381 Fourth Ave., New York City. Glossy prints are preferred.

The Camera Club of Richmond, Inc., Richmond, Va., forward an annual report of a particularly rosy hue. The group now has 111 members, a net gain of 23 members over the previous year. During the past year, 161 prints were submitted to the club's monthly competitions. This group is also to be congratulated on the improvements in equipment made during the year when more than $300.00 was invested in new equipment and $83.00 in photographic books.

The Chicago & Southern Air Lines recently sponsored a camera clinic, in St. Louis, Mo. Giving a course in photography is an unusual role for an airline but the classes brought photographers out by the hundreds.

Six demonstrations were given and the students were taken behind the scenes at the Lambert St. Louis Municipal Airport.

The Kennedy Kamera Klub meets in the Kennedy Heights Presbyterian Church, Kennedy Ave. and Solar Vista Place, Cincinnati, Ohio. Just beginning its second year, this enterprising group is now outfitting a darkroom for its members. Those interested in membership should communicate with Howard H. Nieman, 6214 Tyne Ave., Cincinnati, Ohio.

The Jamaica Camera Club meets the first, second and third Tuesdays of each month at Y.M.C.A., of Jamaica, N. Y. Correspondence should be addressed to J. R. Flaherty, 140-27 172nd St., Springfield Gardens, N. Y.

The Camera Club of Fitchburg, Mass. meets the second and fourth Tuesdays of each month at the Y.M.C.A. Alternate programs offer interesting speakers and evenings of studio work. The group has a darkroom and also supplies models and lights for the studio evenings. This coming spring, the group will present its Third Annual Salon at the local Art Center. Address correspondence to Miss Elsie Lowe, Secretary, Pearl Hill Road, Fitchburg, Mass.

The Range Finder, club bulletin of the Y.M.C.A. Movie and Camera Club, of Des Moines, Iowa, makes a suggestion that any movie club may well give serious consideration. Every city has its old folks, invalids and shut-ins and the Range Finder suggests that its club members investigate the possibility of showing their pictures to these unfortunates.

The San Francisco Junior Chamber of Commerce has recently organized a Photographic Committee under the chairmanship of Richard Wagner. The group plans to make motion picture and still records of the projects and activities of the Chamber. These will be used to acquaint the members and others as well with the activities of the organization. Educational films will also be made showing the advantages of various reforms, etc. advocated by the Chamber. Movies will be shown at state and national conventions and also to the public and the stills will be used in the Chambers publications etc. The Chamber plans to supply the film used in this work. Here is an idea which civic organizations throughout the country could easily adapt to their own needs.

Charles Kyle Archer, President of the Pittsburgh International Salon of Photography and world famous photographer, recently retired as chief of the photographic department of the Carnegie-Illinois Steel Corporation, with whom he has been associated since 1914. The 70-year-old dean of Pittsburgh photographers is a master of the bromoil process and his prints are well known to all who have attended photographic exhibitions.

Photography's first radio program with a coast-to-coast hook up has been inaugurated by NBC over its Blue Network, Wednesdays from 10:30 to 11:00 p.m., EST. The series of broadcasts entitled "Adventures in Photography" will be directed by Herbert C. McKay, internationally famous photographer, author and instructor. In addition to offering an interesting and informative program, a monthly photographic prize contest has been inaugurated. $275.00 will be awarded each month for the best pictures describing or symbolizing the programs of "Adventures in Photography." No entry blanks are necessary, just send your entries to the station over which you hear the program. Send stamps if you want your photograph returned.

The California Camera Club's new Camera Course will begin Feb. 5th, 1940. Classes will be held once a week, for nine weeks, for the nominal fee of $5.00. The classes will be conducted by members of the club and guest instructors.

The 1940 Kodak Exhibit of the Eastman Kodak Company, will be the most extensive in the history of these shows. In order to accommodate the demand, two complete Exhibits have been organized which will show in 30 cities throughout the country during the coming months. Exhibition dates will be announced each month, so watch for the date of the showing in your city . . . don't miss it! There will be a salon of photographic prints, displays of equipment, lectures and demonstrations. A local Salon will be assembled in each city, see your local dealer and submit your prints. January showings: Boston, Mass., Jan. 10-13, the Copley-Plaza; Columbus, Ohio, Jan. 13-15, the Neil House; Philadelphia, Pa., Jan. 17-22, the Benjamin Franklin; Toledo, Ohio, Jan. 18-20, the Secor; Akron, Ohio, Jan. 23-24, the Portage; Washington, D. C., Jan. 26-30, the Willard; Dayton, Ohio, Jan. 27-29, the Van Cleve.

The Washington Photographic Society, of Washington, D. C., announces that during the coming season they will hold monthly prize competitions and that they expect to publish their own club bulletin shortly. correspondence should be addressed to Miss Elfreda Brandl, Secretary, 223-R N. E. 3rd, Washington, D. C.

The New Jersey National Salon of Photography 1940, under the auspices of the Orange Camera Club and The Montclair Art Museum, will offer photographers a rigid new test for the quality of their prints. The exhibition, which will be displayed at the Museum from May 15 to June 15, 1940, will be limited to 101 photographs. The Salon Committee, headed by Thane L. Bierwert, feels that the cooperation of American photographers will make the New Jersey Salon an example of the very finest in present day photography. Entries will be limited to four prints. Further information and entry blanks may be obtained from the Orange Camera Club, 1 So. Clinton St., East Orange, N. J.

The Epic Pool of San Francisco won First Place in the Inter-Club Contest of the Manhattan Camera Club, of New York City. Second Award went to the Greater Pittsburgh Photographic Society and Third Place to the Florida Camera Club.

Microfilm copies of scientific and learned journals are now available at an exceptionally low cost through the non-profit Bibliofilm Service; 1 cent per page for odd volumes and a special rate of ½ cent per page on 10 or more consecutive volumes. These prices have been made possible by a grant, which covers the cost of the microfilm master negative, made by the Committee on Scientific Aids to Learning. The number of pages will be estimated on request to: Bib-

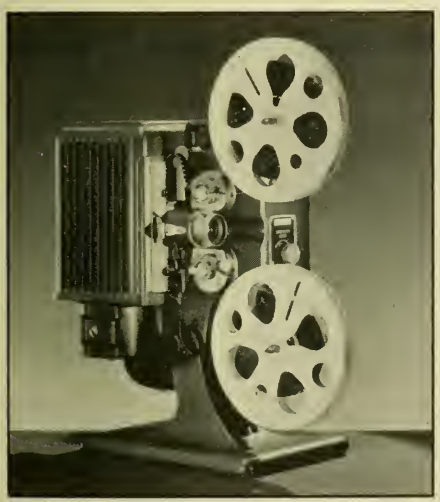
liofilm Service, care U. S. Dept. of Agriculture Library, Washington, D. C.

Mr. H. O. Bodine, Executive Secretary of the National Photographic Dealers Association, was recently honored by being elected an Associate of the Oval Table Society. This honor was granted in recognition of his long and faithful service to photography in many different capacities.

The Second Annual Territorial Photographic Exhibit, sponsored by the Camera Club of Hawaii, has just come to a successful conclusion. 150 prints were selected from 350 entries. In the interclub competition, the Camera Club of Hawaii placed first, with the Hilo and Maui clubs placing second and third, respectively. Correspondence can be addressed to J. M. Allen, P.O. Box 3080, Honolulu, T. H.

Notes and Comments

A new Kodascope Eight, Model 70, an 8mm. motion picture projector has been announced by the Eastman Kodak Co., of Rochester, N. Y. The new projector is the last word in efficiency offering many improvements over earlier models. Some of its many features are: die-cast construction attractively finished in gun-metal; a one-inch F:1.6 projection lens which with a 500-watt lamp and beaded or aluminum surfaced screens it is possible to show pictures up to 39 x 52 inches; convenient threading knob; three position switch controlling lamp, motor and cooling fan; a rapid rewind, set in action by pull of lever; speed adjustment knob gives operator absolute control of projection speed; and a highly efficient cooling system. Kodascope Eight, Model 70, will sell for $68.50, without lamp.



Kodascope Eight, Model 70

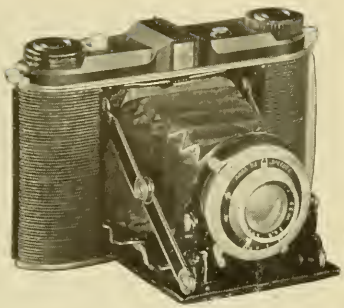
As far as the supply of high-grade photographic lenses is concerned, the European situation does not disturb the sales program of the C. P. Goerz American Optical Company, of 317 East 34th St., New York City, at the present time. They state that their New York factory is ready as ever to supply the American retailers with a full line of their American product as they have done for over four decades. Since 1899 they have been building fine anastigmat lenses for the various branches in photography, including photo-engraving and movie camera lenses, also accessories for same. Sensing the possibility of interruption or delay in imports of certain types of optical glass necessary for the production of their celebrated lenses, they have at this time sufficient stock on hand to take care of all normal demands of the trade for a considerable period.

New circulars announcing new products and special bargains are now available without charge from Willoughbys, 110 West 32nd St., New York City. The circulars announce a special sale on Willo Printers, The Elkay Roto Reel Developing Tank, the new Law Photo Print Dryer, the $1.00 Kel Greeting Card Outfit and the Rocker-Rinser a quick acting print washer. Write the above address for these interesting free circulars.

Transparo Art Corners have been introduced by the Engel Art Corners Mfg. Co., 4714 N. Clark, Chicago, Ill. This new application of these famous mounting devices makes corners very adaptable. The new corners are supplied with both a colored and a transparent pocket and these may be used as the photographer prefers. Transparo Art Corners are available in six colors, all with the transparent feature, and prints may also be mounted temporarily or permanently, as preferred.

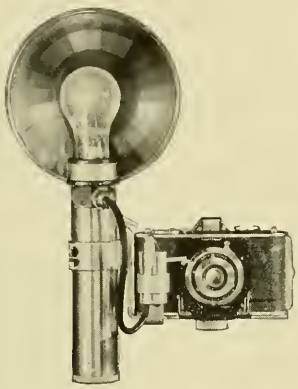
A new line of reflectors, the Fluo-Brites, have been placed on the market by the Black Mfg. Co., 309 Cherry St., Philadelphia, Pa. Using a new chemical process, developed for aluminum reflectors, they are said to give one-third more light. Other features are their resistance to stain and their elimination of hot spots. The Fluo-Brite Reflectors are available in a variety of models, ranging in price from $.65 to $9.35. Write the above address for further details.

The new Master Leicameter, an adaptation of the now famous Weston Master Exposure Meter, has been announced by E. Leitz, Inc., 730 Fifth Ave., New York City. Instead of giving foot candle readings, the Master Leicameter is scaled in direct shutter speed readings. Write the above address for further details of the Master Leicameter.



Agfa Speedex

The New Agfa Speedex, a new precision-built camera taking 12 exposures 2¼ x 2¼ inches on 120 film, has been introduced by the Agfa Ansco Corp., of Binghamton, N. Y. Priced remarkably low at $27.50, the Speedex has an F:4.5 anastigmat lens, speeds from ½ to 1/250 second, as well as time and bulb; focusing from 3½ feet to infinity is provided with an adjustable ring on the lens mount; an optical eye-level view finder; body shutter release; and many other features. Write above address or see your dealer.



Agfa Memo and Speedgun

New Agfa Ansco products have been announced by the Agfa Ansco Corp., of Binghamton, N. Y. A new Speedgun for synchronized flash pictures with the Agfa Memo Camera is available at $14.50. A new Agfa Darkroom Safelight, with 3 filters for use with different types of papers and films, provides the maximum in visibility with complete safety. Price $1.95. A new Reflector Kit for after dark snapshots is made of heavy card and includes two metal adapter rings for attaching them to standard home lighting fixtures. Printed on the sides of the reflectors are exposure data and recommended lightings. A 10 foot folding rule and an Exposure Calculator are also provided. See your local dealer.

The Unipod, a handy accessory, has been introduced by the Albert Specialty Co., 231 So. Green St., Chicago, Ill. When folded, the Unipod looks like an ordinary walking stick but at a moment's notice it may be converted into a steady camera support. It locks securely at any height from 33 to 59 inches.

A Custom Finishing Service has been introduced by the Central Camera Co., 230 So. Wabash Ave., Chicago, Ill. Individual, expert attention will be given every order and, while the charge is somewhat higher than standard finishing prices, the improved results should more than compensate. Write the above address for complete details.

A free booklet on enlarging is offered to the readers of Camera Craft by Burke & James, Inc., 223 W. Madison St., Chicago, Ill. It will offer much useful material for the photographer. Copies will be off the press shortly, so write for your free copy now. A new catalog covering all kinds of photographic equipment and supplies is also available without charge. 80 pages, 7¼ x 12 inches, profusely illustrated.

Graphic Graflex Photography, a new book by Willard D. Morgan and Henry M. Lester, will be ready early in January 1940 announces the Folmer Graflex Corp., Rochester, N. Y. According to the Folmer Graflex Corp., this book presents for the first time, all in one volume, articles dealing with practically every phase of photography possible with the Graphic or Graflex cameras, from ordinary snapshots to highly specialized. The book will be priced at $4.00.

Time payments on Graphic or Graflex cameras are now possible, the Folmer Graflex Corp., of Rochester, N. Y., announces. All Graflex dealers can now offer easy terms, with as little as 20% down and 12 months to pay. Ask your local dealer about the plan or write the above address.

The Victor Sunflector is designed to replace the cumbersome reflecting panels necessary when making exposures in direct sunlight. The Sunflector's small size makes it extremely portable. It is a 9 inch convex mirror, mounted in an aluminum casing and with a chromium finished support. Its primary purpose is to balance the lighting in outdoor work and it is particularly effective in relieving shadows in outdoor color photography. Write the James H. Smith & Sons Corp., Griffith, Ind.

The new Roto Electric Print Dryers, introduced by the Warren Electric Appliance Co., of Warren, Pa., offer amateurs and professionals an efficient, economical method of drying prints. A chromium drum with heating element, guaranteed six years, and a pre-shrunk drying belt make up the Dryer. The drum is rotated by hand and prints will dry in from four to eight minutes. The Amateur-Professional model, with a 28 x 24 inch drying surface, is priced at $19.95. The Amateur Model, with a 12 x 18 inch drying surface, is priced at $9.95. Write the above address for further details.

Physicians and clinical photographers will be greatly interested in the Wappler Endoscopic Camera, which permits photography through telescopic instruments such as cystoscopes. It combines the world-famous Wappler instruments with the Robot Camera. The Robot Camera was selected for this combination because of its automatic film advance, an essential in this type of work. A circular describing the Wappler Endoscopic Camera and its use may be obtained

upon request from the American Cystoscope Makers, Inc., 1241 Lafayette Ave., New York, N. Y.

The Lee Foot Switch, introduced by Irvin I. Aaron & Associates, 4028 N. 16th St., Milwaukee, Wis., is an unusually efficient piece of equipment. Slightly larger than a pocket watch, and resembling it in shape, the Lee Foot Switch may be operated by a light pressure on either side of the mechanism. Price is $3.50 ($3.95 west of the Rockies). Descriptive material is available upon request.

New Rewind attachment for Filmo 8 cameras makes effects requiring backwinding of film possible, announces the Bell & Howell Co., 1801 Larchmont Ave., Chicago, Ill. The new rewind counts the frames one by one as they are rewound into the camera. A special fader attachment for the rewind will soon be available.

The Braquette is a smart looking, attractive device for hanging your prints introduced by Braquette, Inc., 225 Fifth Ave., New York City. Its most important feature is the fact that prints may be changed in a minute's time. Braquettes may also be adjusted to any size desired. Two metal brackets, one for the base of the print and one for the top, are provided. Into these the mounted print and its protecting glass are slipped. When a change is desired, the print is slipped out and another inserted. Available in two different models at $1.00 and $2.00.

Photographers interested in building their own equipment will welcome the announcement made by the Chess-United Co., Emmet Bldg., New York City, that they can supply condensing lenses, ground glass, opal glass and other materials necessary to this construction.

The Photographers' Association of America and the National Photographic Dealers' Association will hold their combined Conventions and Trade Show in Chicago, Ill. The Headquarters will be the Hotel Stevens and the opening date is August 19, 1940. Two evenings the Trade show will be open to the general public, by ticket only, so photographers in that vicinity and elsewhere will do well to begin planning now to see the greatest photographic show ever.

The Meyer Synchronized Range Finder, recently introduced by Hugo Meyer & Co., 39 West 60th St., New York City, is designed for plate and filmpack cameras. A finely built piece of precision equipment, the Meyer Range Finder is very simple to operate. Looking through the eye-piece, two squares are seen, one within the other. The image in the larger square remains fixed while that in the smaller moves as the finding dial is turned. When the two images coincide, the camera is in focus. The square shape of the fields makes focusing quick and easy. When coupled to the camera lens, the Meyer Range Finder insures exact focus at every distance.

A school of photography, in Baltimore, Md., will be opened shortly, by the Ritz Camera Centers, chain of photographic supply houses. The school will be under the direction of Morris Germain, A.R.P.S., famous photographer and instructor. As soon as building construction is completed, enrollments will begin. For further details write Morris Germain, A.R.P.S., 26 W. Lexington St., Baltimore, Md.

F-R Roll Film Developing Outfit

A new F-R Roll Film Developing Outfit has been announced by the Fink-Roselieve Co., Inc. In one compact unit everything necessary is included for the developing of roll films. The outfit includes a F-R "Special" Adjustable Developing Tank (which may be adjusted to fit all standard sizes of roll film); the Thermolecular fine grain developer; and the concentrated fixing-hardening solution Fixol. The kit also includes 2 clips for hanging films to dry and an instruction book. Price of this outfit is $2.95.

The S & S Slide Assembly offers photographers a new, economical and effective way to bind their 2 x 2 inch slides. It consists of a heat reflecting tin foil mask, two pieces of absolutely uniform glass and two metal clips that fit snugly over two ends of the glass. The binding is permanent if desired or the film may be removed and another transparency mounted, without waste or damage. Though the metal clips are only necessary on two sides, they are so constructed that they may be used on all sides, making a solid metal binding. The S & S Slide Assemblies will sell for 10c each, clips 2 for 5c, and they will be packaged in boxes with material for 12 slides. Write Spindler & Sauppe, Inc., 86 Third St., San Francisco, Calif., for further details.

A new Junior Model of the well known S & S Selectroslide will be introduced shortly by Spindler & Sauppe, Inc., 86 Third St., San Francisco, Calif. The Junior Model does not in any way replace the regular Selectroslide, which accommodates 48 slides, but was produced to fill a definite demand from many sources. The Junior Model accommodates 16 slides and is designed for automatic projection only. The projector and mechanism are in a single unit which will go in a case approximately the size of a portable typewriter. It will be used primarily for window displays and advertising purposes. Price, it is reported, will be approximately $125.00.

The Korelle Reflex camera can now be adapted to use Kodachrome film in the #828 Bantam size, announces Burke & James, Inc., 223 W. Madison St., Chicago, Ill. The attachment sells for $15.00 and the camera must be sent to Burke & James for fitting.

The new Bass Still Camera Bargaingram No. 242 is now available. A 72-page up-to-the-minute exposition of cameras, enlargers,

apparatus and supplies, with all new text books. A copy of this useful catalog will be mailed free to readers of this publication. Write: The Bass Camera Co., 179 W. Madison St., Chicago, Ill.

Mini-Flash. a new pocket size Flashgun, has been introduced by Berman-Meyers, Inc., 90 West St., New York City. The Mini-Flash name applies to its handy pocket size as it may be adapated to any camera large or small; brackets and shutter releases of different lengths being provided to conform with the type of camera to be used. The Mini-Flash reflector, of the aplanatic type, is made in eight sections that fold together, fan-like, when the flashgun is not in use. The outfit uses the small batteries, commonly used in "fountain pen" type flashlights, which cost only 5c each and last about six months. The Mini-Flash is easily adjusted for perfect synchronization and it also has an open style bulb clip that makes it simple and safe to remove lamps quickly. Priced at $12.50 complete.

The California St. Camera Mart, 223 California St., San Francisco, is this city's newest exclusively photographic store. Located close to the center of the financial and shipping districts the new store will offer photographers in this area complete service in either the still or motion picture photography fields. The manager, Warren O. Rupp, has had nine years' experience with the Eastman Kodak Co., and his knowledge will be at the disposal of his customers.

The 4 x 5 Deardorff Camera offers all the advantages of these famous precision-made cameras in the most economical size and therefore it is of greatest interest to advanced amateurs and professionals alike. The 4 x 5 has the double swing back and swing front, the extra long bellows and the rigid construction of all Deardorff models. An ideal camera for color photography. Write for descriptive material to L. F. Deardorff & Sons, 11 So. Des Plaines St., Chicago, Ill.

New products announced by The Edwards Fine Grain Laboratory, 30-34 E. Adams St., Chicago, Ill. These are Fulltone, a new paper developer, of long life and a new tonality. Per quart 60c. Twins, stop bath and hardener for film. In a new simple-to-use package, makes 6 pints for 35c. Fastdry, for drying film rapidly. Ready to print in ten minutes. 65c per pint. FILMFILE, transparent cellophane jackets for all sizes of film—150 for $1.00 (35 mm.), 100 for $1.00 (larger sizes). Also The Edwards Fine Grain Developer—for maximum speed and a minimum of grain, per quart, $1.00.

A new Kodak Control for Photoflood Lamps has been introduced by the Eastman Kodak Co., of Rochester, N. Y. It offers economy of operation and greater comfort and ease in the subject. A compact metal box, the control may be plugged into any power line of 100 to 125 volts. It accommodates six No. 1 or 3 No. 2 lamps and has four sockets into which the lamps may be plugged. When the "dim" switch is on, all lamps emit just enough light to arrange the lighting, eliminating most of the heat and glare. The lamps may be instantly snapped to full brightness and then reduced after the exposure. Price of the control is only $4.50.

The Super Kodak Six-20 is now provided with seven photocell masks which compensate for the increased exposure necessary when using filters or artificial light with this photoelectrically-controlled camera. Price of the mask set, with case, is $5.00.

The F-R Precision Range Finder has just been announced by the Fink-Roselieve Co., Inc., 109 W. 64th St., New York City. Of the very finest construction, the F-R Range Finder has passed every critical test prior to its marketing. When not in focus, it shows two images, and when these are brought together the distance may be accurately read off the dial. It functions precisely at distances from two feet up. Write the above address for complete details.

A very handy camera "Carry-All" has been offered by Foto-Art, Inc., 49 Vanderbilt Ave., New York City. These attractive kit bags will accommodate any camera up to 9 x 12 cm., and its accessories. The Carry-Alls measure 10 x 8 x 2½ inches and have three pockets and a filter pocket in the cover; zipper cover and shoulder strap. Prices from $4.95 to $8.95, depending on the leather and finish selected.

A free booklet on making better pictures is offered by Ray's Photo Service, 705 Ray Bldg., LaCrosse, Wis., fine grain processors. Ray's Photo Service will fine grain process any 36 exposure 35 mm. roll and enlarge each good negative to 3 x 4 inches for only one dollar.

The Kemp Print Washer and Devel-O-Therm are two new products of the Kemp Camera Supply Co., 923 No. Cole Ave., Hollywood, Calif. The Washer converts any sink into an efficient washer. A 3 foot rubber hose clamps onto the faucet and the outlet is attached to the side of the sink by a suction cup, creating a whirlpool action that keeps prints apart; while the drain keeps the water at the proper level and draws off hypo laden water from the bottom. Price $1.50. Devel-O-Therm is an accurate, durable thermometer calibrated from 10 to 120 degrees and priced at 50c. A complete Kemp Catalog is now available from your dealer and ask to see his new sample book of effects possible with the Jack Powell Etching Screens.

A new Tri-Purpose Projector, Model DD, has been announced by the Society for Visual Education, Inc., 100 E. Ohio St., Chicago, Ill. The new model is the only 150-watt projector available and it accommodates 2 x 2 inch Kodachrome or Dufaycolor slides and 35 mm. filmstrips, either single or double frame. Other features include: a new semi-automatic slide changer; an anastigmat objective lens; a new adjustable positive film movement; the S.V.E. Rewind Take-Up; hinged lamp house; heat absorbing filter; and a handsome carrying case. Write the above address for descriptive circulars on the new Model DD and other S.V.E. Projectors.

The new Super Omega B, which marks a great advance in enlarging engineering, has been announced by Simmon Bros., 37-06 Thirty-sixth St., Long Island City, N. Y. Its outstanding feature is its geometrically correct distortion control with a tilting and rotating negative carrier. By tilting and rotating the negative carrier as required, and by making a complementary adjustment of the tilting baseboard, a needle-sharp image is obtained in which the vertical and horizontal lines are parallel with the print

margins. The Super Omega B takes negatives up to 2¼ x 2¼ inches and negative focusing instead of the conventional lens focusing permits the use of one set of double condensers for any size lens. An all-purpose enlarger, a number of practical accessories can convert it into a copying or microphoto camera, an efficient instrument for color separation work or a 1 to 1 ratio projection printer. A special attachment for horizontal projection throws giant images on the wall. Inclined steel-girder supports allow complete freedom in placing the paper holder on the baseboard. The twin-guide micrometer focusing and new type dustless rapid film holders are other important features. Price, without lens, $77.50. The new Omega C-II, taking negatives up to 3¼ x 3¼ inches, has all features of Super Omega B, except horizontal projection and tilting board, price also $77.50. Write the above address for further details.

Karl A. Barleben, F.R.P.S., well known to all photographers, has joined Goodspeed, Inc., 220 Fifth Ave., New York City, manufacturers of Goodspeed Flash Synchronizer. Features of this new synchronizing unit are its small size, the absence of a separate battery unit, its adaptibility to practically any camera and its "featherweight" shutter action.

Victor Metcalf is now in charge of the camera department of Smith Bros., Inc., 1721 Broadway, Oakland, Calif. Photographers in the East Bay are coming in increasing numbers to deal with this experienced, personable camera merchant. Ask Victor Metcalf about his special camera bargains.

A new Fotoshop Almanac Catalog, with 174 pages, 8½ x 11 inches, and over 600 illustrations, has just been published by the Fotoshop, Inc., 18 East 42nd St., New York City. Besides offering a complete, illustrated review of photographic equipment and supplies of all kinds, this giant catalog contains an Almanac Section with informative articles on developing, printing and enlarging, indoor and night photography, how to use filters, etc. Copies of the catalog will be sent upon receipt of 25c, which will be credited on the first purchase of $2.00 or more.

Important price reductions have been made on the Rollei and other cameras in the Burleigh Brooks line, announces Burleigh Brooks, Inc., 127 W. 42nd St., New York City. In most cases, the prices are down to the pre-war level of Sept. 5th, 1939. These reductions were made possible by the fact that Burleigh Brooks, Inc., have been able to get several large shipments through although it was thought at the war's beginning that supplies would be completely cut off. The Automatic Rolleiflex is now $144.00, without case ($10.00 for case) and the Model II Rolleicord is $90.00 without case ($8.50 for case). Other prices on cameras, lenses and accessories in the Brooks line have been reduced in proportion.

A new Nikor Print Washer, offering a compact, efficient way of washing prints or films, has been introduced by Burleigh Brooks, Inc., 127 W. 42nd St., New York City. The washing is done between the leaves of a vertical "book" made of specially processed absorbent fabric. Prints cannot touch each other and are fully protected from damage. The filtering action of the cloth assures clean water which is piped into the top of the washer by a rubber hose. 8 x 10 inch size (capacity fifteen 8 x 10 inch prints or equivalent area in smaller prints) is $4.75; 11 x 14 inch size (capacity fifteen 11 x 14 inch prints) is $7.75. An illustrated circular is available from the above address.

Answers to What Is Your Photographic I. Q.?

1. Hypo fixing bath (plain). Sodium thiosulphate is hypo. H_2O is water. Two liters is approximately equivalent to 64 ounces. Here is the formula:
   Hypo ..... 16 ounces
   Water ..... 64 ounces
2. Movie projector. The teeth or pins, which engage the perforations in the film, and move it downward through a distance equal to the height of one picture, are referred to as claws or shuttles. The movement of one frame or picture to the next is called the intermittent movement.
3. Apothecaries measure. Grs. is grains, oz. is ounce, and drm. is drachm. Apothecaries measure is used extensively in England but rarely in the United States where the Avoirdupois system is commonly employed. In the measurement of solids the drachm (dram) is a unit in the Apothecaries system but not in the Avoirdupois system. The dram is a unit in the U. S. Customary system of liquid measure, and is equal to 60 minims.
4. Accelerators; all three are accelerators, or, more accurately, alkalizing agents.
5. Exposure factors. In either contact or projection printing the length of exposure is dependent upon the: a) paper speed, b) negative density, c) intensity of the printing light, and d) color, if any, of the negative.
6. D-76. Both D-76 and DK-76 are recommended for low contrast and fine grain development. D-72 is excellent for press work when rapid development and high contrast is preferred. DK-50 is fine for general portraiture or commercial work. D-82 should only be used for extreme underexposures.
7. Lens. The lens is an assembly of circular pieces of glass called elements. The barrel is a metal tube in which the elements are contained. Stops refer to the diaphragm opening at which the lens is set, as for example, F:8 or F:16.
8. Focal length of lenses. In popular miniature camera lenses the focal length of the "standard" lens is generally accepted as 50 mm. In addition the 85 to 90 mm. and the 135 mm. focal lengths are popular in the long focus lenses.
9. Film speed ratings. Scheiner, DIN, and H. and D., are three different systems of rating the relative speed values for various film emulsions. A fourth very popular system is the Weston.
10. Filters. Eastman's Wratten contrast filters are designated as follows:
    A. Red filter
    B. Green filter
    E. Orange filter
    G. Deep yellow filter

Our Book Shelves

New Paths in Photography, by Andreas Feininger. Published by the American Photographic Publishing Co., of Boston, Mass. 64 pages, 10 x 11 inches, 47 full-page plates, cloth bound. $2.75.

A book designed for photographers who are seeking new techniques and applications of photography. The author shows the way to abstract creative work through the following mediums: Direct projection, negative prints, negative-on-diapositive, granulation and solarization. These processes may be used either straight or in combination and, as the author explains, offer an infinite variety of effects.

The Technique of Pictorial Photography, by Paul L. Anderson. Published by J. B. Lippincott Co., of Philadelphia, Pa. 403 pages, 6 x 8½ inches, illustrated, cloth bound. $3.50.

A complete text book on photography by an author who needs no introduction to photographers. Mr. Anderson is one of America's most famous pictorialists, known for his fine photographs as well as his interesting, informative writings on photography.

This book was originally published under the title of "Pictorial Photography, Its Principles & Practice." Due to a continued demand, the author revised the text and it has been republished under its present title.

Though interesting and informative throughout, the most valuable section of this book is that which is devoted to the photographic printing processes: Platinum, Carbon, Carbro, Fresson, Gum, etc. Mr. Anderson is a master in these mediums and his explanations are detailed and authoritative.

Portraiture and the Camera, by Marcel Natkin, D. Sc. Published by the Fountain Press, of London, England; American Agents, the Camera Craft Publishing Co., of San Francisco, Calif. 80 pages, 7x10½ inches, $2.00, cloth bound.

An excellent text on portraiture for the amateur photographer. The author presents an entire system of portraiture, beginning with an analysis of the meaning and aim of portraiture and proceeding, in detail, to the retouching of the final print. Mr. Natkin considers the various components of a portrait, i.e., the eyes, nose, mouth, head, shoulders, hands, etc., as separate units, discussing their special problems. Then he brings them together and writes of them as a whole for the actual exposure. Portraiture with miniature and studio cameras is discussed, indoors and outdoors, with and without artificial light.

No part of the process is neglected and every point is carefully illustrated by pictures from famous French photographers. One of the most valuable sections of the book is a special section of practical studies. In this section, the author takes two different models and conducts them through an entire sitting. Accompanied by a running discussion the photographs show each change of lighting, each change of pose and how the photographer works toward his final picture.

Photography for Profit, by "Nettel." Published by the Chemical Publishing Co., of New York City. 218 pages, 5½ x 8½ inches, 66 illustrations, cloth bound. $2.00.

A book for the free-lance or the press photographer written by a famous cameraman who is successfully practicing the instructions given in the text. The volume covers press photography, photographic-journalism, advertising photography, competitions, etc., especially as they apply to the free-lance photographer. The only drawback of this work is the fact that it was written in England and therefore its specific references to markets are not applicable to the U. S.

Seeing California with Edward Weston. Published by Westways, journal of the Automobile Club of Southern California. 50 pages, 9¾ x 12¾ inches, 150 illustrations, boards. $2.00.

A collection of Edward Weston's inspiring photographs, selected from those made during the first year of his Guggenheim Fellowship. Photographers and laymen alike, will see in these pictures new aspects and beauties of California, brought to them through Weston's genius.

There is no need for us to sing Weston's praises when every photographer knows and values his work as we do; so we will dispense with lauding the pictures in favor of pointing out the value of this collection to the photographer.

There are the obvious values of beauty and inspiration but, more than these, the pictures serve as an excellent object lesson in "seeing" pictures. Californians, in particular, will recognize sections which they have traveled personally and will be amazed at the beauty of a scene they may have passed as commonplace or dull.

This book will also serve as a photographic guide book of California. Pictures are grouped by localities and the cameraman may select the kind of subject matter he wishes to photograph and plan his trips accordingly.

Perfect Negatives and How to Make Them, by Dr. B. J. T. Glover. Fourth Edition. Published by the Fountain Press, of London, England. 85 pages, paper binding, price 75 cents.

A new edition of this famous handbook, which is No. 1 in the New Photographer Handbook Series. The material has been brought up-to-date and includes the development and handling of miniature negatives. The value of this book is best shown by its amazing popularity, as this is its eleventh printing, involving many thousands of copies.

With Dr. Glover's companion booklet in this series, "Print Perfection," it is required reading for every serious photographer. These books explain simply and concisely a complete system of developing and printing that is thoroughly practical.

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ME NOW, PROFESSOR! . . . . . William Mortensen
FECTION IN TECHNIQUE . . Paul Louis Hexter, A.R.P.S.
EAMS IN WINTER . . . . . H. W. Wagner

WITH THE GROWING IMPORTANCE AND EFFICIENCY OF THE MINIATURE CAMERA, ITS PROBLEMS BECOME AN INCREASINGLY IMPORTANT PART OF PHOTOGRAPHIC INSTRUCTION. THE MORTENSEN SCHOOL OF PHOTOGRAPHY NUMBERS AMONG ITS GRADUATES MANY OUTSTANDING WORKERS IN THE JOURNALISTIC FIELDS OF THE MINICAM BOTH IN THIS COUNTRY AND ABROAD.

MORTENSEN SCHOOL OF PHOTOGRAPHY

LAGUNA BEACH CALIFORNIA

"Crossing the Stream" — ***John R. Hogan***

First San Francisco International Salon

Outdoor Portraits

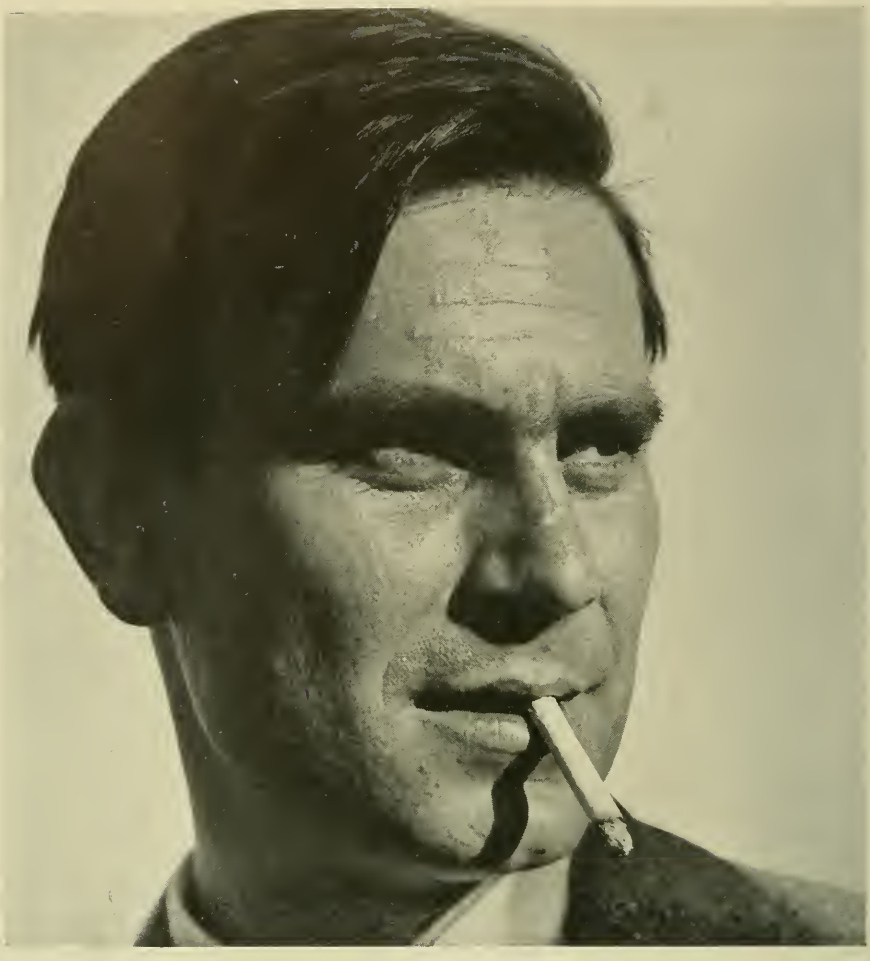
Warren Newcombe

I HAVE been asked to discuss outdoor portraits, and I'm sure I don't know why. Nor what to say. If some of the many pictures I have taken of my friends have turned out well, as far as I'm concerned that's just so much good fortune.

Everybody I know who takes presentable pictures relies about as much as I do on the percentage system. One shot in 20 is good. You can't go out and say, "I'm going to take a perfect picture." That's true especially in portraiture, and more especially in outdoor portraiture. Weston, the greatest photographer of them all, gets maybe two portraits he's satisfied with out of 12 plates. Of course, in landscapes he gets a nearly perfect picture every time. That's because in a landscape you don't have to worry too much about getting a likeness of the subject, although that consideration certainly does come into it. In portraiture, the thing I try for most is to get a likeness. There's no use in having a picture of one of your friends if the picture doesn't look like him, or if the expression on his face isn't characteristic.

As for composition in outdoor portraiture, I don't believe I ever thought about it before this minute. You feel composition instead of thinking about it. Of course, there's no such thing as composition when anybody can trim a picture after it has been printed. The art is to get the picture you want within the boundary of the ground glass. Incidentally, I am of the Don't-Monkey-With-It school in all phases of photography, and my opposition extends to the practice of double-exposing clouds in order to make the picture look like a painting. Photography is another art and has nothing to do with painting. To get back to composition—the word itself is a term invented to fit the subject of art, and trimming and other tricks are merely matters of artisanship; they haven't got anything to do with art.

If you know photography, you know the composition is right when you look in your ground glass, or you know it isn't right. Or maybe that statement is unfair. Since 1910 I've been painting pictures. I studied to be a portrait painter. Naturally, over all those years I've learned some-



"Jose Rodriguez, Writer and Critic" *Warren Newcombe*

thing, and when I turned to the camera a few years ago I had an advantage. Although I don't remember ever *learning* anything about composition or design, I suppose it's possible that I absorbed something about it and that other people can, too. Certainly all the facts are in the book *Dynamic Symmetry*, by Jay Hambidge. That's about the best pointer I can give.

But I still say that success in outdoor portraiture, in my experience, is largely a matter of chance. Not long ago I took a picture of Edward Weston which several people have remarked on, and which I think is very good. But I doubt if I could take another shot as satisfying if I tried until the little Rolleiflex I use just fell apart from old age. Everything in the picture seems to dovetail and pull together. It's a candid picture, and in it Weston's profile lines up vertically with the profile of the face of his camera. I didn't put those features that way. Weston just happened to be leaning forward, watching and waiting for some ocean spray to spring up the way he wanted it for a picture. The slanting lines of the focussing cloth and of

"Edward Weston, Photographer" *Warren Newcombe*

the top of the camera make a wholly accidental motif that is repeated in a split rock in the background. I swear it was all a lucky break. I didn't know all that was in the picture. Maybe—just maybe—I felt it. As I say, it was a candid shot. I refuse to give out a formula for it.

Sometimes students get so involved in ritual and formula that they never do get a decent picture. Some photographers worry about technical details and artistic requirements so much that by the time they have all the elements to their liking the sun has gone down. Some other fellows toss a handful of negatives into some dirty soup—and they've got some real pictures. Of course, it isn't right to slur the fine art of technical application, but some people seem to plug at it all their waking hours and get

"Slavko Vorkapitch, Motion Picture Director" *Warren Newcombe*

no results. Others just have luck, or intuition, or whatever it is, and can get along on a minimum of technical exactitude. Millions of fine photographs go through the drug stores. We've all found an occasional superlative picture in a roll of snapshots of our friends. Where are you going to find a recipe in that? Nowhere, I guess, and maybe that's a good thing; because the people who see what I'm driving at are going to save a lot of time.

Not that there's no use knowing what good portraiture consists of: what I mean is that there's no use spending all your life in study, and hours posing every picture. I also mean that when you've had enough experience in taking pictures, you'll get to sense a good one at the moment you snap it. Frequently, just at that moment you will unfortunately be able to sense instead that the picture's a bad one. That will happen more often. That's because under ordinary portraiture circumstances you can't plan the good features in a picture.

On the basis of experience I can't be optimistic about photographic portraits. Once I took 12 shots of a friend—a whole Rolleiflex roll—and

"Edward Weston, Photographer" *Warren Newcombe*

only one looked like him. Where would I have been if I'd spent 15 minutes studying the background, the design and all the other features of each shot, and if I'd worked like the devil to keep the prints from being grainy, and all that stuff? I'd be behind on my sleep.

I have to come back to the fact that a man either has a sense of design, or he hasn't. If he has it, he can always arrange a good landscape picture or still-life. And he can occasionally obtain a good outdoor portrait.

Of course there *are* books such as *Dynamic Symmetry* which will give you the basic facts about balance and rhythm and composition. But Hambidge, the author, doesn't tell you how to put these things *into* a painting or photograph. He merely takes a number of good paintings and analyzes *their* elements, in the expectation that some of his readers will begin to get the feel of harmony. A painter himself *feels* that he needs such and such a thing here and something else there to complete his picture. But any man who tried to give you rules to apply to the making of any and every good picture you intend to take during the rest of your life—that man would be an impostor. He can tell you approximately what *he* does, and what *his* percentage of good photographs is. But you won't very often

"Henry Botkin, Painter" *Warren Newcombe*

be able to follow his methods exactly enough to get his results. Your own experience is the best kind of experience.

My own procedure in taking pictures is a matter of preference and of machinery. I get all the elements in the picture the way I like them best, then I click the shutter. I don't like to tackle the making of portraits in a serious mood, as a rule. When the sitter is told to get ready for a picture, that's exactly what he does. He freezes over and gets self-concious. I like to catch them on the run. Results are usually a lot better. Even then, as I've already mentioned, one satisfactory picture in a roll of 12 is a good percentage.

As far as I know, there aren't any rules in taking outdoor portraits, except the simple mechanical one of having enough light. The only man I'd listen to for a formula is the man who can have every negative a good likeness, well defined in composition of light and shade, well contoured and good and sharp. I'd listen to that man and follow his methods. But I've never heard of him.

Perfection In Technique

Paul Louis Hexter, A. R. P. S.

THERE is a widespread notion among many photographers that the mastering of photographic technique is a tremendously difficult feat. True, in the case of many photographers, technique is difficult yet it is none the less the easiest part of photography. The really hard part is the initial experience and mental synthesis from which a picture is really evolved. If the mind is clear to follow directions and if the reasons for these directions are clearly understood, perfect photographic technique can be learned in a reasonably short period of time. It is a system which can be taught to everyone.

There is much confused thinking even among experienced photographers on technical procedures. There are endless developing formulas, numerous developing agents, and several systems of developing. There is development by inspection, by time and temperature, the factorial system, the water-bath method, divided developers, etc. There are pyro, metol, hydroquinone, glycin, amidol, p-phenylene-diamine, chloro-quinol, and many other developing agents. Charles Kerlee uses pyro-acetone. Mortensen uses metol-borax. Weston uses D-1 pyro. Steichen uses straight metol. It is all most confusing. The average photographer believes there is some mysterious secret the experts use in their technique which lies in the developer. They search among new developer combinations and endless formulas trying to solve the mystery themselves.

There is no mystery. Most photographers have the knowledge and the experience to solve the problem. The only trouble is that the average photographer does not see the photographic process as a whole. He sees the various parts such as exposure, development, lighting, and developer, each as a separate problem in itself rather than a series of steps, each dependent and interrelated to the other. He visualizes a negative as the sum when separately adding film stock, lighting, exposure, developer, and development, whereas it is the product of all these factors together. A change in one will change all the others. They cannot be resolved individually and

treated separately. The average photographer knows well these individual steps but he does not correlate them.

Two English amateurs, Hurter and Driffield, solved all the mystery of photographic technique some fifty years ago. With present day technical materials, the knowledge of their performance, and an instrument such as the photo-electric cell exposure meter controlling this performance, perfect photographic technique can be achieved by everyone.

Perfection in technique is based on the application of two basic fundamental laws which Hurter and Driffield discovered:

1. The density of a negative is determined by exposure.
2. The separation of tones on the negative is determined by the amount of development.

"Old stuff," you say. I know it. If you both know these laws and observe them you are an uncommonly good photographer. Most photographers know the laws but few let it influence them in the slightest degree. The directions in a box of film tell you to develop for ten minutes in XYZ developer. As the separation of tones on the negative is determined by the amount of development, following such instructions simply means that, regardless of the demands of the subject, tones are being separated to one standard amount. Subjects and lightings vary over a wide range of conditions. This one may require very wide separation of tone ratios. That one may require little separation. Developing all films for the same time is obviously not the way to achieve perfection in technique.

The amount of development is conveniently measured by a mathematical symbol—gamma. It is a Greek letter and its interpretation is Greek to most photographers. Hand a negative to your closest photographic friend and ask him what he thinks is the gamma of the negative. If he gives you an answer, he does not understand gamma, for gamma can neither be seen nor estimated visually.

A gamma of 1. (unity) means the tone ratios of the subject have been reproduced in exactly the same ratio on the negative. A gamma of less than 1. means the tone ratios of the negative are not separated as much as in the original subject. A gamma of more than 1. means the tone ratios of the negative are greater than the original subject. Obviously you cannot hold a negative up to the light and tell whether the tone ratios are the same, greater or less than the original subject. Gamma is only a comparison between the tone ratios of the subject and the negative.

When you look at a negative you see its visual contrast. You see the separation of tones judged by comparison to other negative tones, not by comparison to the subject. Thus a negative of a contrasty subject can be developed to gamma .6 (less than unity and a low gamma) and visually have high contrast. Similarly a negative of a flat subject can be developed to gamma 1.4 (greater than unity and a high gamma), and while having greater tone separation than the original subject can be a flat weak negative.

If we know the gamma to which a negative has been developed we know:

1. The amount of development that has taken place.
2. Whether the tone ratios are greater or less than the original subject.

Now turning all this around, we have something extremely useful in making negatives. Looking at a subject we can judge whether the tone

"Alexander Woollcott" *Paul Louis Hexter, A.R.P.S.*

ratios should be registered as they are, in a greater ratio, or in a lesser ratio. We can then select a value of gamma which will determine:

1. The tone ratios on the negative as they are wanted.
2. The time of development required to bring this about.

Gamma is then used as a number by which to multiply the tone ratios of any subject so they are reproduced on a negative in the same, greater, or lesser ratio than they were originally. Thus if you elect to develop to gamma .6 the tone separation will be 60 per cent of the original subject. If you elect gamma 1.3 the tone separation will be 30 per cent greater. Taking a flat subject, the ratios must be increased for brilliance. Taking a contrasty subject, they must be decreased. The usual run of subjects will require gammas of .7 to 1.3.

When you take any photograph, you are making a record of a multitude of various light reflections from various objects. Most photographers are so involved with recording these tones that they never pause to consider just how they want these tones recorded—in the same ratio as the subject, in greater, or in lesser ratios. The best they hope for is a usable negative. George Bernard Shaw, once an amateur photographer, wrote, "The photographer is like the cod which produces a million eggs in order that one may survive." This was true in 1906, when it was written, but today it is out of order.

If in taking a photograph, the photographer's first decision is how he is going to record the tone ratios and the rest of his procedure is keyed accordingly, then he will solve the mystery of photographic technique. He will take any picture at any time, knowing beforehand that his negative will be the product of his mind, not left to the chance of averaged results. It will not be the product of some magical formula, nor will it be guesswork at any stage. It will be the beginning of the photographer controlling the camera, making it do what he wants, not the camera running the photographer.

In the portrait of Alexander Woollcott, the lighting was one 500 Watt T 20 bulb placed squarely in front of the subject at a distance of 4½ feet. The background is an ordinary cream colored hotel room wall, about 5 feet behind the subject. This wall was lit with another 500 Watt T 20 bulb. The background light had nothing to do with the picture. Without it the background would have been dark. I prefer to work with light backgrounds and shade in afterwards, unless a dark ground is specifically called for.

This lighting set-up produces a very flat light in ordinary lighting parlance. Yet look at the vitality in the picture. This is not happenstance and a photogenic model. (Mr. Woollcott has assured me that personal vanity is not one of his vices.) It is due to predetermined emphasis on tonal relations at the time the picture was taken. This emphasis was achieved by expanding tone ratios beyond what they were in the original subject, deciding on a high gamma for this negative at the time the picture was made.

The same procedure was used in "Rifting," which was made at Quimper, in Brittany. A storm had taken place late in the afternoon. There was not much light, but as the clouds broke some came through. I waited for twenty minutes until the clouds shaped themselves over the buildings

"Rifting" *Paul Louis Hexter, A.R.P.S.*

so the light areas could be enclosed in a picture without bordering the edges. Without expanding the tone ratios beyond what they were in the original scenes nothing would have been seen in the dark foreground. Again a high gamma was elected to seperate the tone ratios more than they were in the original subject. Thus development was actually determined at the time of making the picture, not left to chance in the dark room, or to some guess as to how much separation was needed. Nothing need be left to chance in the photographic process.

The use of gamma as a multiplier of the ratios of tones in the subject can work only if exposure is keyed accordingly. A negative is the product of lighting, film stock, exposure and development, each dependent on the other. All these factors influence a negative equally. No one is more important than the other. In this article I have discussed the determination of development by the appearance of the subject. Thus lighting and development have been related and made dependent on each other. In my next article I will show how exposure can be keyed in after the selection of a certain gamma, and discuss the practical means of developing to selected gammas.

Come Now, Professor!

William Mortensen

AS attested by our publications, we photographers are creatures of fickle moods and fancies, subject to the airy influences of the sun, moon and stars, and brought to strange dissensions and differences by the liverish workings of cold and damp. In particular are we susceptible to seasonal changes. For, after a spring and summer of gay and careless picture-taking, full of creative *elan* and technical *insouciance*, we settle down to a grim and contemplative winter, beset with doubts and melancholy musings on The Meaning of Gamma, Is Life Worth Living? and What Is Art?

These pages have lately seen a manifestation of this seasonal urge, in which the authors not only consider What Is Art? but also What Is Photography?

Of all perennial discussions, probably the most fascinating and fruitless is this one on the meaning of art. We have had thousands of answers from all sorts and conditions of men—from academicians and rebels, from conservatives and liberals, from artists and aesthetes, from professionals and amateurs, from wise men and learned doctors, from physiologists and psychologists, from duffers and dilletantes, from dadaists, cubists, synchromists and surrealists. Diligent anthologists have compiled and analyzed the answers. But, after wading through this mass of unreconcilable opinion, we find that we know not one syllable more about art or what it

"The Quest for Pure Form" *William Mortensen*

is than when we started. One thing only is apparent: that, when a man gets through defining art, he has simply defined the kind of art that *he* likes.

To give the artists credit, they do not take this business of defining art very seriously. They simply do it for the hell of it, or because it is expected of them. If, in some unguarded moment, they pronounce some *obiter dictum* to the effect that Art Is This or Art Is That, they don't permit it to cramp their style or feel themselves obligated to live up to it. Their art to them is something to be done, not something to be talked about. It is not the artist who allows himself to be limited by the tyranny of words and logic: it is the lesser man, the amateur, the professor, the dilletante.

These men, we find, when we examine their pronouncements carefully, are prone to talk, not about the arts, but about ART, which is a grandiose abstraction of their own invention. In so doing, they usually completely disregard the artist and his works. However, the writer goes on writing, not ART, but books; the painter paints, not ART, but pictures; the architect builds, not ART, but buildings; the musician composes, not ART, but music; so they all get on very well together.

Nevertheless, these classroom pontifications have a tendency to muddle our thinking about the pragmatic business of making pictures. And, when the pedagogues attempt to ride herd on photography, I feel obliged to raise a polite protest.

Academic cerebration about ART leads to numerous standard and oft-cited fallacies about the arts.

The first of these fallacies is the one about "purity" in the arts. It is sometimes ingratiatingly phrased that "Art should be true to itself." This fallacy is one that is frequently marshalled against any type of control in photography.

The notion of purity in the arts seems to be something that has been thought up by the critics and professors, and by them imposed on the amazed artists. Certainly the artists themselves have not subscribed to any such arbitrary ground rules, and they will continue to make their own rules and their own art. Aside from the pedantic desire to neatly divide the field of art into airtight compartments, there is no inherent reason why one sort of art should *not* resemble another, why painting should not resemble sculpture and etching resemble painting. To cite a couple of instances, consider the sculptured aspect of Michelangelo's paintings and the painted aspect of Rembrandt's etchings. Here are two scandalous cases of impurity; yet Michelangelo is one of the greatest of painters and Rembrandt one of the greatest of etchers.

This Galahadish passion for purity leads to strange technical deductions in the photographic field. We are told, for example, that "Nature has darks that are deeper than photography can duplicate, and lights that are more luminous." Consequently, in order to secure as nearly as possible these deep darks and luminous lights, we must foreswear all but the glossiest of papers, and sternly abjure all textures, rough or mat surfaces. Here is a *non sequitur* if there ever was one. It is perfectly true that "Nature has darks, etc., etc.," but—so what? Nature also has color; nature also has a third dimension; nature also has movement; nature even has smells: but none of these things can be adequately represented in the photographic medium. Why then worry about the accurate transcription of the deep

darks and luminous lights? Except for mere recording purposes, they are of no more importance than Nature's color, third dimension, movement or smells. The picture and its effect are the only things that matter, and the maker of the picture is entitled to use whatever means he chooses—including modifications, distortions or elisions of tonal values—to bring them about.

Another fallacious technical deduction is that the instrument of the medium—that is, the camera—should always be used so as to utilize its fullest possibilities for definition and clarity. This is obviously false: the full technical resources of any medium are held in reserve, for use only when needed. A writer does not use his whole vocabulary in every paragraph. A painter does not feel obligated to use all the colors in the Windsor and Newton catalogue: he gets his best effects by limiting his palette. An organist does not pull out all the stops on his instrument, nor does a composer have his orchestra play at full blast all the time in order to realize his technical resources to the utmost. Similarly, the capacities of the camera are subject to creative manipulation in terms of subject-matter and artist.

The academic mind is usually enamoured of the absolute: so we hear a good deal about "pure form" and "formal relationships." We are assured that form is the primary concern of art. This may be true of ART; however, try as we will, we cannot dissociate the arts (particularly the graphic arts) from meanings and emotions. To say that art is primarily concerned with form is to say that speech is primarily concerned with vowels and consonants, and that literature is primarily concerned with the alphabet. From the point of view of "pure form," the dome of the national Capitol and the breast of a woman are remarkably similar, but aesthetic as well as practical considerations make a good deal of difference which is which. The great painters do not paint form, they paint pictures. It is of course true that, for the sake of more effective presentation, they practice consolidation and simplification of masses: but it is only the theorist who gets into a dither over mere cubes and cylinders. "Absolute art" will not be met with as long as non-absolute man has anything to do with it. Even in music, which is inherently a far more abstract art than painting, the pedants raise their voices in vain against "program music" and music with a meaning. Even their mainstay, Bach, fails them; for his B minor Mass is really program music on the grand scale.

All graphic art is representational. And photography is the most representational of all the graphic arts. A photograph is necessarily a photograph *of something.* Representation is, indeed, the very essence of photography. To tie up photography to pure form and absolute art is to deny its essential quality. So-called "abstractions" of course *can* be made by photographic means; but they are just as wide of the essential quality of the medium as are, in another medium, those Armenian-made quasi-Oriental rugs setting forth representations of the Eiffel Tower or the Mona Lisa.

Neatness appeals to the academic mind, so it is apt to lay over-emphasis on order in the arts. Order no doubt is a necessary consequence of the rearrangement and simplification of material: but such a statement as "Art is the expression of ordered relationships" is misleading because it takes in too much territory on the one hand and not enough on the other. It

takes in too much territory because mere "expression of ordered relationships" is no indication of artistic quality or intent. The multiplication table is similarly an expression of ordered relationships. So is the graph of food prices for the last twenty years. Yet they obviously have no artistic quality. On the other hand, the arts express much more than ordered relationships. They express emotion, they express meaning, they express the artist's own personality.

One other fallacious formula of professorial criticism should be mentioned. This formula grows out of paying undue deference to that pretentious Teutonic bugaboo, the *Zeitgeist*. "Art," we are told, "should reflect its period." This idea has made considerable headway, not always to the advantage of the arts. A good many present day artists (including photographers) have discovered with a start of pleased surprise that they are contemporary, much as Moliere's M. Jourdain learned to his gratification that he had been talking prose all his life without knowing it. So they have rolled up their sleeves and gone to work reflecting their period in a big way. Out of this itch for contemporaneousness and this theoretical enthusiasm for oil derricks and cog wheels have developed the concept of "functionalism" and the theory that modern art should look like an ice box.

The art of this period *will* reflect its period, no doubt, to future historians, just as everything we do will reflect its period. It is neither to its credit or discredit that art reflects its period, it is an irrelevant necessity. Over-self-consciousness of our contemporaneousness will neither add nor take away one jot or tittle of the extent to which we reflect our period. Indeed, having conscious and deliberate recourse to one's *own* period is just as artificial a proceeding as having conscious and deliberate recourse to any *other* period. The arts are concerned with deeper human verities, not with the accidents of period.

On the other hand, it is vain to suppose that any art can be completely of its own time. There are bound to be borrowings, either unconscious or intentional, from the past. It has become the custom of late to point the finger of scorn at the naughty Romans, who swiped most of their architectural ideas from the Greeks. Even more is it pointed at the recent Eclectics, who took whatever they could lay their hands on. As a matter of fact, we can no more avoid borrowing from the past than we can avoid having grandfathers. The Greeks did quite a bit of borrowing themselves—from the Egyptians and other cultural predecessors. There are even some thoroughly incongruous elements in the Greek temples—if judged by bald modern "functional" standards—such as the columns (reminders of the logs which once supported the temples), and the triglyths and metopes (vestigial remnants of the rafters of the old timber structures). Probably the only artistic endeavor that was free from the influence of the past was the first Cro-Magnon scrawl on a mastodon scapula—and even it is open to suspicion. The sensible attitude of the artist toward the past, toward the other arts, and toward the world around him is summed up for all time in Kipling's quatrain:

"When 'Omer smote 'is bloomin' lyre,
He'd 'eard men sing by land an' sea;
An' what 'e thought 'e might require,
'E went and took—the same as me."

"Palestra Bianca" *Cesare Guilio, Torino, Italy*

22nd Los Angeles International Salon

Streams In Winter

H. W. Wagner

BECAUSE daylight hours are short in winter it behooves the picture hunter in this season to choose carefully the territory he roams. Situated as most of us are, the wisest procedure is to go to a stream and follow its course for a half mile or more. Winter streams, from a small flow to a large river, from a meandering meadow brook to a tumbling mountain waterfall, and contiguous snow-scapes, present most of the elements found in successful snow and ice pictures.

Before starting out on our jaunt, suppose we name and consider some of these essential elements. First, there is a profusion of curves, more pleasing than rectangular lines to the pictorial minded. The stream itself is curved, and has associated with it a host of minor curves found in tributary gullies and in ice growths.

When the water is not frozen over, "texture" is visible in the form of ripples or in the dance of spray. The finishing touch for a desired composition may be provided by reflections—of trees, bushes, skies or snow banks. The delicate gradations of a snow bank as reflected from contrasting "black" water is most effective. Reflections were a motive in making "Black and White." At the same time enticing fringes of lace ice or broad bands of ice may be found bordering open water. "Ice Bands" was located after high water had frozen over and had receded.

Ice formations are legion, not only as horizontal surfaces, but also near rapids and waterfalls where spray freezes on rocks and trees and bushes and where water runs slowly over miniature cliffs. The frozen surface of the river is more interesting after alternate thawing and freezing have done their part. Ripples and convolutions of inclined ice forms are a challenge to the skill of the photographer in selecting view point and lighting.

Many streams are fringed with trees and bushes, which when not too profuse or jumbled, contribute majestic or rhythmic pattern to the view, with their forms and shadows. Bridges offer fertile variations in subject matter.

Prominent among the merits of our chosen range is the benefit of banks and elevations. One needs a low sun to capture the maximum of snow texture on a horizontal field, but the same effect can be found on inclined banks when rays from a high sun make sharp angles with the surface. Elevations provide the vertical expanse of subject matter or the high view point frequently necessary to expand the scene in a vertical direction.

"Ice Curtain" *H. W. Wagner*

No attempt was made to stop motion of the water. The effort was to subdue background, and to record details of the icicles by means of the small aperture and yellow filter.

½ second at f:16 on Agfa Supersensitive Plenachrome cut film, Eastman Wratten K3 filter, 4 p.m. in February, hazy light. Print on Eastman PMC #11.

Camera: Eastman 3A Special Kodak, with Kodak anastigmat 17 cm., f:6.3 lens.

Nature has spent her time through geological ages building these elevations and adjacent hills for the benefit of the pictorialist.

A tributary swale often supplies the leading line or way through a picture, flanked with contours of interest. Nearby swamps and shallow ponds contain splendid combinations of grass and ice texture of unending variety.

To check the yield of our general subject, take a census of your own most attractive pictures found in the vicinity of brooks and rivers. About two-thirds of the pictorial illustrations in "Snow and Ice Photography"* are from shots made over and near streams.

Equipment deserves a few words. High waterproof footgear is advised. Wading may be necessary to reach the other side for the picture, or perhaps the only view point is from a watery position. Then, too, when one becomes properly engrossed in the splendor on all sides, he finds himself breaking through a snow covered ice crust into water and mud.

Be sure to select from your stock a camera which has a focusing ground glass screen. It will be the most suitable for dealing with the average situation. The small hand camera is the one to use from a pinnacle or other precarious view position or for stopping the action of skaters on the ice. The tripod should be tall enough to bring the lens up to eye level when a high view point is needed, and it usually is. I yearned for a step-ladder in photographing "Icy Curve" (to elevate the further bridge rail), but that gadget would have been somewhat cumbersome on the five mile hike taken that day.

The three horizontal illustrations in this article are from negatives exposed after the images had been focused on the ground glass back of a 9 x 12 cm. camera, supported on a tripod, and equipped with a Heliar 15 cm., f:4.5 lens.

Two filters are sufficient for practically all requirements, one a deep yellow, the other a light red. Look through the various colors of an Eastman filter test chart to choose the filter for the desired rendering of colors which may or may not be apparent to the naked eye.

Sensitive ortho film is quite adequate, until one acquires a red filter; then pan film may be adopted for general use. Extra high speed emulsions are appreciated when an exposure is made through a heavy filter, with swift water or wind blown vegetation included.

Mood, when portrayed in a simple and convincing manner, contributes immensely to success.

Slow moving dark water is sullen. A bright tossing brook exudes cheerfulness. In late winter, rotted ice and stained snow predict the welcome warmth of spring. Ice, in its various forms, conveys the cold, deadening grip of winter, expresses majesty; or, with sunlight dancing on its rippled surface, displays the gaiety of the foot-lights. Grotesque drifts, formed along the banks, suggest the charm of fairyland. Bridges and other structures and living figures add human interest. The deeply white-blanketed nearby landscape denotes peace and quiet. And running through the appreciation of all these moods, is the joy of seeing: of seeing those marvelous high key gradations of which snow and ice are master sources.

To record each mood so that it can be transferred to paper, one must

*By H. W. Wagner. Camera Craft Publishing Company, $1.00.

"Ice Bands" *H. W. Wagner*

View point was chosen to favor the "S" curve of shell ice, supported by minor parallel bands.

1/10 second at f:11 on Agfa Supersensitive Plenachrome cut film, Eastman Wratten K3 filter, noon in February, sun at the right. Print on Agfa Brovira Royal White.

have feeling, technique and experience. Also, I should confess, in consideration of my hundreds of discarded negatives, one must have luck in finding the subject of appeal. The law of averages, however, is pretty sure to catch up with him who makes enough efforts. Employ low key for gloom and for mystery: high key for cheer and for peace. I apologize if the picture elements and moods already named conveyed the idea that they all should be crowded into one photograph. To obey that idea would be disastrous. In general, select only one element to feature, or a very few which are in harmony with each other. Sometimes a touch or suggestion of a second element or mood may serve as desired accent or emphasis.

The greatest opportunities exist, of course, when the sun is bright or only slightly hazy. But dull days should not be counted as completely out: then is the time to seek soft outlines of forms and masses. Perhaps there is haze or frost or snow in the air, and the atmosphere leads the lines of your subject into a land of delightful fancies.

On location, be alert. Emulate the hunter, the fisherman. Pictures seldom shout out at one. Make a close-up examination of that fringe of lace ice. Look back occasionally. Inspect that sweeping curve from various angles and distances. Perhaps the camera should be moved to a higher elevation. As a final check on composition, carefully search the ground

"Black and White" *H. W. Wagner*

The object here is to feature the bank edge high lights and their reflections, in combination with the "Z" composition of the brook. Shallow depth of water was the cause of the stationary ripples which are recorded in spite of the long exposure.

½ second at f:11 on Agfa Superpan Portrait cut film, Corning HR yellow-red filter, 4 p.m. in February, sun at the right. Print on Eastman Kodabrom, G4.

glass image for discordant elements: they are most easily detected that way. The ground glass also permits critical judgment of relative light intensities from various parts of the subject. If the sunlight is hazy, a yellow filter will delineate the shadows more clearly. Stop down for fine rendering of a close-up texture picture: set the stop wide to gain focal perspective or to subdue unwanted distant detail.

Striking and dramatic effects are secured by "shooting against the sun." Back lighting, attained in this way, permits the camera eye to see an expanse of shadow which builds up texture, modeling and pattern. Beware, however, of too violent, direct sun reflections from water and ice. The pattern may be too complex or the highlight may be too completely blocked for satisfactory rectification by dodging when printing. "Ice Curtain" was printed with but little dodging because it was taken in hazy light. Intense sunlight might have created contrasts beyond control. Dodging can work wonders though: most images are subject to improvement by means of that artifice. Beware also of brush tangles and of criss-cross tree branches. An isolated tree or two may help the mood, and bushes are more easily endured if in a rhythmic arrangement.

Exposure of the film should be kept within reasonable limits, most easily determined from an electric exposure meter: but shutter speed is

"Icy Curve" *H. W. Wagner*

Focus was on the near texture of the crust formed by frozen rain. A large enough aperture was chosen to throw distracting detail in the upper right corner out of focus. 1/25 second at f:8 on Agfa Supersensitive Plenachrome cut film, Eastman Wratten K3 filter, 1 p.m. in February, sun at the right. Print on Agfa Cykora.

not critical unless there is movement in the scene. Moderately long development of the negative is advised because snow and ice call for high contrast in treatment.

The highly important and critical stage, after the picture has been composed on the ground glass or through the finder, is that of printing. Print quality should be pivoted on the high lights. They must be neither muddy nor chalky. The overall effect is taken care of by selection of contrast of paper, length of exposure and full development.

White paper stock has universal acceptance for winter pictures discovered along streams. Many photographs are enhanced by a suggestion of color in the silver image. Chloro-bromide papers are becoming more popular, and their warmth of tone is appropriate for the middle and dark gradations in vegetation, water and ice. Blue-toning when not overdone adds an ethereal quality to shadows on snow and to the sky. I feel that Gustav Anderson's outstanding success in salon exhibition is aided by his skillful handling of the delicate blue tones in his splendid winter pictures.

After you weary of processing, go back to your winter stream. So long as snow and ice last, that locality will be an ever-changing delight. Picture possibilities come anew with every storm, every thaw, every freeze, and with every position of the sun.

Through The Eye By Camera

Robert S. Mac Collister

AN ENORMOUS camera, costing over a thousand dollars, which takes pictures of a tiny, unreachable surface inside the eye, is one of the incredible achievements of modern photographic construction. One of these rare cameras—only about a dozen of this model are in existence—reposes in a small, dimly-lit consulting room of the San Francisco store of the Jenkel-Davidson Optical Company. Although the firm is known to California photographers mainly for its retail photographic supply department, the big camera in the little room is not for sale. The Zeiss-Nordenson Reflex Free Retinal Camera is maintained by the optical company as a service to eye physicians.

Pictures of the retina of the eye are extremely important medically, since many bodily ailments create allied changes in the appearance of blood vessels in the back of the eye long before outward symptoms appear; a record of these changes is highly valuable in preventive medicine.

Experienced photographers have been incredulous on hearing of the existence of such a camera. Yet it does exist—and takes its astonishing pictures as a matter of routine at the big optical store.

To see inside the eye is a big job for even this camera; it is a complicated physiologic mechanism. The cornea, the shiny, clear outer surface in front of the round colored part of the eye, corresponds to the front surface of the Tessar, Protar, KA, or whatever type of lens your camera is fitted with. The eye's anterior chamber, back of the cornea, corresponds to the air space in your camera lens, and the iris, the colored part of the eye, corresponds to the lens diaphragm—opening or closing to control the entry of light. Just back of the iris, the crystalline lens of the eye performs the focusing function. Corresponding to the space in a camera between the lens and the film is the eye's vitreous humour. Instead of a film, the eye has a retina (a many-layered light-sensitive membrane on its back inside wall). It is the blood vessels, the head of the optic nerve, and the various specialized areas seen in the retina which, when recorded photographically, are valuable to the medical man.

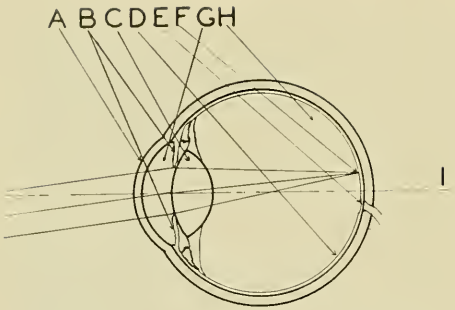
In developing a camera to photograph this important area, the firm of Carl Zeiss had the collaboration of a Dr. Nordenson of Germany. The

The "Eye Camera" in Use

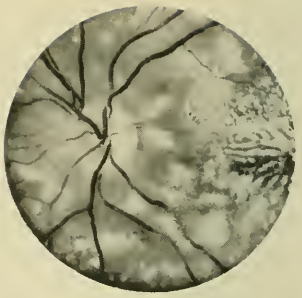
camera's light source is an incandescent, ring-shaped filament. The light from it is focused on the cornea of the observed eye by means of condensers, a ring-shaped first surface mirror and a special wide aperture lens. The light from this lamp then goes into the eye through the iris (which is first artificially enlarged by administration of a mydriatic by an eye physician), illuminating the background of the eye. This light enters around the outside of the opening in the iris, while the light that forms the picture leaves the eye through the unilluminated central area. In this way, sharpest detail is recorded and no reflections are formed in the picture.

The light reflected from the retina is rendered parallel, or nearly so, by the lens system of the eye. This parallel light is then focused by a special two-element lens, one surface of which is aspherical in order to correct for spherical aberration in the camera lens and in the eye being photographed. The light from the eye is focused by this special lens into an aerial image a short distance along the body tube of the camera. The aerial image is photographed onto the film or plate by another three-component photographic objective further back.

The Zeiss-Nordenson instrument is made in the form of a reflex camera; the actuating plunger, in addition to raising the mirror of the reflex section, increases the light to photoflood brilliancy and at the same time trips a Compur shutter which removes a green filter from the path of the light. Because of this mechanism the image may be focused in dim light and the picture taken by brilliant light.



Horizontal section of right normal eye. A. Cornea. B. Iris, forming pupil. C. Lens. D. Retina. E. Optic nerve. F. Macula. G. Anterior Chamber, filled with the Aequous Humour. H. Vitreous Humour. I. Axis of eyeball.



Pictures such as this, of the background interiors of diseased eyes, are of great assistance to the eye physician in his diagnostic task.

Color pictures are made on Kodachrome, Type A, using a Bantam film adapter. Exposure is about 1/5 second. For black-and-white photographs, Eastman Super Ortho Press Sheet Film is used, in a cut film sheath and plate holder, with an exposure of about 1/15 second. The retina is recorded on the film at about a 5X magnification. Such excellent detail is obtained that enlargements up to eight-inch pictures may be made. Color transparencies may be projected on a screen for the use of large study groups. Naturally, color enlargements on paper may be made of the transparencies if desired, and if expense is no object.

With the help of this rare and expensive camera, medical men are building up greater records of the eye in diseased and healthy states, making examination more objective, diagnosis more exact, and instruction more thorough.

The Pictorial Side

Gamma

THE young photographer is frequently inclined to believe that if he can learn the technique of photography the artistic side will take care of itself. While the importance of technical knowledge should be stressed, if one wishes to advance as a pictorialist considerable study should be given to this phase of the craft. It is true that some of us are more gifted by nature aesthetically than others. It is also true that some of the rest of us who are not so abundantly gifted may by study, observation and practice develop this intangible artistic side of our nature to a great extent.

Such training should at least materially increase our enjoyment of life whether or not it makes Salon exhibitors of us.

The most readable source of inspiration is that found in books on art and in photographic and art magazines which will supply an almost endless source of material for study. Any well equipped library will furnish sufficient reading and illustrative material to keep one engaged for a long course of self instruction. There are books on composition for the photographer and painter; books by and about great artists and those describing and illustrating the paintings in great galleries. Reproductions of Rembrandt, Hals, Rubens, Van Dyke, Holbein, Velasquez, Raeburn and many other old masters are worthy of careful and critical study. Where is the emphasis placed, where do the lines lead, how are the masses arranged? We can ask ourselves all the usual questions about these famous works, the results of the labor, thought, skill and inspiration of the great masters.

Pirie MacDonald, the eminent photographer of men, has told of his love of Raeburn and how eagerly he studied the paintings of this great artist. Was it odd that an admirer of MacDonald should remark that his work was reminiscent of Raeburn? And what a compliment!

Much literature is also available on present day art, and, while we may find some of the work of the modern school bewildering, to say the least, yet many consider the landseape work of conservative Americans of today to be the finest the world has ever seen. In other lines also the work of the American artists is outstanding. We should find an ever increasing pleasure in the study of paintings and the allied arts for themselves alone, not to mention the ability acquired for better photography.

With the increasing popularity of photography many new books on various phases of the subject are being published. Some of them are of interest and value, but if one must count his nickels they should be purchased with caution and only after careful consideration, or disappointment will follow. There are, in my opinion, few books on photography that are worth more, dollar for dollar, to the young worker than a subscription to a good photographic magazine such as CAMERA CRAFT.

Photographic magazines and annuals accumulate rapidly and, like back numbers of other periodicals, soon become an unwieldy burden. A practical plan is to clip out the articles and pictures that especially appeal and to file them as one would business correspondence. Pictures and articles can be subdivided into as many classifications as may be desired. For instance, one might start a file of portraits, and later as it increases in size subdivide it into portraits of men, of women, of children, of groups, outdoor, indoor, etc. Other illustrated magazines, catalogs and newspapers will supply clippings and pictures for the collection, and many valuable and inspiring suggestions will be obtained from this material. The advantage of a file over a scrap book is that the items can be better organized. Reclassification is easy and as one's tastes change old data can be quickly and easily discarded. In a few years one will have a most interesting and valuable collection especially adapted to his own needs.

How quickly we forget impressions. A little notebook recording ideas acquired in exhibitions, notes on material suitable for our consideration, places that appeal to us as having pictorial possibilities, scenes under certain conditions of light, all can be noted down and referred to later when

the time and opportunity for photography may be more favorable.

Naturally the photographic salon is one of the best places to study this art, to get ideas, to realize what are the required standards, and to find what new trends are developing. Fortunate indeed are those who have access to such exhibitions. And the salons of the painters should not be neglected. The annual and more frequent special exhibitions in our great city galleries, not to speak of the permanent collections, all should be of interest to those to whom they are available. In studying paintings we can have an open and inquiring attitude toward that which we do not understand and there certainly is much modern art which is difficult to comprehend these days. To the work that does appeal we can give a longer and more careful study. We thus acquire ideas for subject matter and composition. Frequently rough little pencil sketches in the note book already mentioned help us to keep these pictures in our minds.

Joining a camera club is a procedure almost too obvious to mention to those for whom it is possible, and small indeed is the community where two or three persons at least cannot get together informally to compare notes and render mutual assistance.

Another and perhaps the most important method of self training is observation. We can be ever on the lookout for pictures wherever we are, even though our cameras are not at hand. If we are interested in portraiture we learn to watch faces on the streets, on the train, in our homes, and in the office or wherever we may be. Once in a hundred or perhaps a thousand cases we will see the face that appeals or the play of light that strikes our photographic fancy. It's a fascinating game. And likewise, in looking at street scenes or landscapes, we watch for the flashing moment when form and light combine, and in an instant we have stored an impression in our minds. We've had an adventure that others have missed, and we are able to see a little more clearly and quickly another time when we have our cameras with us. This pastime adds interest to every movie or play we see. We watch the changing scene until everything gradually or quickly takes shape and "now," we say to ourselves, for in a fleeting fraction of a second things are just the way we want them and another mental snapshot and a happy memory are added to our collection.

Fortunate is the worker who has a good critic, one who is appreciative of what is good in his work and is unafraid to tell him of what is not so good. The critic may be a photographer or a painter or perhaps one who is neither but who just happens to know what is right. At the risk of acquiring the reputation of being a public nuisance one may call in various friends. One should eventually find and recognize honest and helpful advice. It is frequently said that a pictorialist is a poor judge of his own work, but in the final analysis it is important for him to be pleased with his own product, whatever the rest of the world may think. So after the criticisms are made, let us be independent in accepting or rejecting what we believe we should and evaluate our own work for ourselves.

Other lines of endeavor will readily occur to the student who is educating himself as a pictorial photographer but enough has been suggested so that the young worker can realize that it is possible for him to grow as an artist as well as a technician.

"Voodoo Priest, Haiti" *Rex Hardy, Jr.*

Courtesy Life

Cinema Section

Edited by

William A. Palmer

Filming Goldilocks

William Lee Morgan

FANTASY in an industrial film studio is contagious. Even the "studio-grouch" quit grumbling and got into the spirit of things. He seemed almost eager to get things under way for shooting. We were making "Goldilocks" for a national mattress manufacturer. It was to be the familiar nursery tale, with such slight alterations in the story as would, it was hoped, sell the observer this particular brand of mattress.

Goldilocks herself began as an aluminum armature, about eight inches high. Neck, shoulders, wrists, hips, and ankles were fitted with ball-and-socket joints. The elbows and the knees were hinge-joints. After being shaped and filled out, the figure was dressed in a tiny peasant costume. Heads which had been molded in clay and cast in plaster were adjusted to the figure. These heads were interchangeable and were of many varying degrees of expression. The eyes were movable.

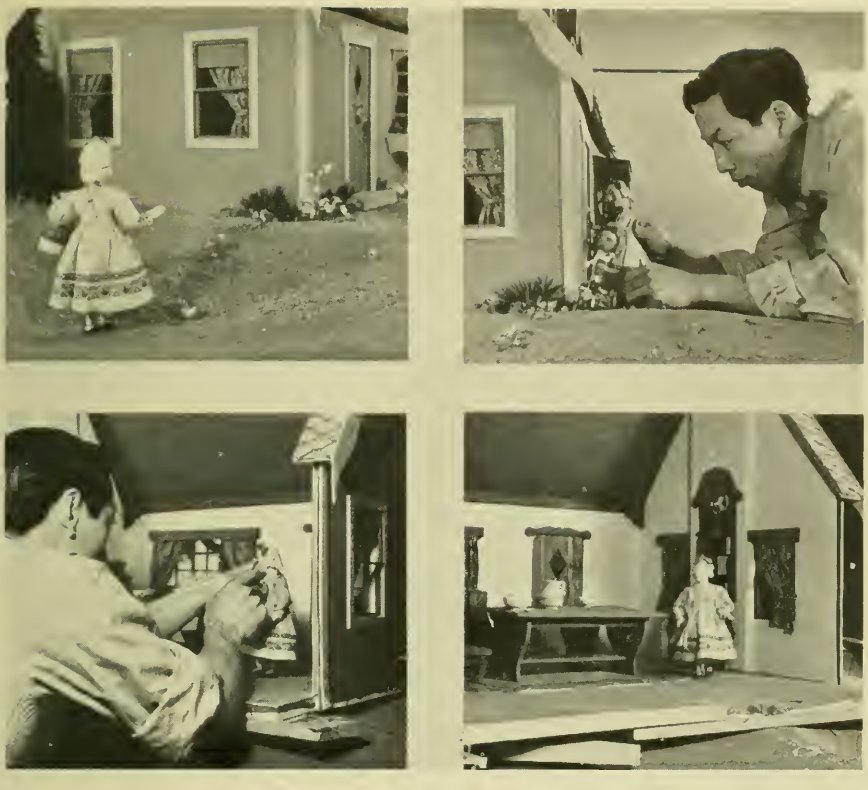
Each of the three Bears was based also on a similar jointed aluminum armature. Pa Bear was slightly taller than Goldilocks; Baby Bear, of course, was considerably smaller. Heads, hands, and feet were carved out of wood. Interchangeable heads were not made for the Bears, but their eyes, eye-lids, and jaws were movable, and with careful animation and selection of camera angles, they changed expression remarkably.

Pa Bear was dressed in trousers of a rather loud checked pattern; his shirt was a plain colored one, and he had a straw hat he wore outdoors.

Ma Bear wore a rather full Mother Hubbard and apron, and a sun-bonnet, of course, when she went outside.

Baby Bear was dressed in a little overall playsuit.

"Long shot. Bears' house through the woods." This was the opening scene



"Stills" taken during production

in the picture. A feeling of distance and a storybook quality were sought in this shot. It was decided that this could be achieved best by a series of cut-outs which gained in scale as they were placed closer to camera position.

Against the far wall was placed a large blue cyclorama for sky. Set out from this was a cut-out painting of the Bears' cottage—considerably smaller in scale than the figures. Ahead of this were placed a number of rows of fantastic trees and bushes, each row larger in scale as it was nearer the camera.

Between the first and second rows of trees (from the camera) was built an apron, sloping slightly toward the camera. This was covered with green terry-cloth and "planted" with tiny wild flowers. Another platform, unseen by the camera however, was built out towards the Bears' cottage in the distance.

Into this woodland setting skips Goldilocks, with the traditional "nuts-in-May" abandon. Over her arm is a little basket. She stops with delight when she sees the flowers and gathers some into her basket. Close-ups, of course, as she smells and admires the flowers. Suddenly Goldilocks catches sight of the Bears' cottage in the distance. After a moment or two of indecision, she skips off toward the cottage. Fade-out.

A further effect of distance was gained in shooting the scene. It was shot with the lens fairly wide-open, focused sharply on the action in the foreground. The background was thus slightly out of focus, giving it a hazy, far-away appearance.

It should be explained that the film was being shot in stop-motion animation, a single frame being exposed at one time. The action described required a full day to shoot. The animator moved the figure each time only a fraction of an inch and then ducked out of the way while the cameraman flicked the single-frame release; a slow, laborious process, and one requiring not only infinite patience but an exact knowledge of how we walk and run and express emotions in pantomime.

The process was further slowed up by the fact that each time the figure was moved it had to be fastened securely in position. Otherwise, if it fell over, or even slipped a little, the entire scene would probably have to be remade, as it would be almost impossible to replace the figure in exactly the same position.

Goldilocks arrives at the Bears' cottage—the real house this time, built to scale with miniature shingles on the roof, clapboard siding, window frames, a walk and steps up to the door, and a miniature garden. The cottage—really only two walls and the section of the roof facing the camera were built—was set on a plaster of Paris hill, which was covered with ground green rubber to simulate grass.

Goldilocks peeks into the window, tiptoes around to the door, and knocks. No one answers. Cautiously she lifts the latch and goes in.

We used the other side of the same set for the interior of the Bears' cottage. Reversible sets have their disadvantages—among them the fact that if you build one side to take best advantage of camera angles, you sacrifice flexibility on the other side. Then too, when the set is fastened down and dressed for use as an exterior, it is usually necessary to complete filming all scenes on that side of the set before starting on the other—often an inconvenient situation. But reversible sets are much more economical to build, and accuracy in matching the common features of both sets (doors, windows, etc.) is assured.

Goldilocks lays her basket of flowers on the table, samples the porridge in the traditional manner, and tries out the three chairs. Then she goes into the bedroom. After trying each of the Bears' beds, with their hard, lumpy mattresses (commercialism starts to rear its head), she decides the floor will be more comfortable. She sits down on the floor and starts to go to sleep. Fade out.

Fade in on the three Bears lumbering up the road, returning home.

Three figures are considerably more difficult to animate than one, as the animator must remember just what action each is to take in order that the continuous movement will be natural on the screen. And there is the triple danger of a figure getting out of position.

When more than one figure is used, all figures must be moved a little each time, whether their action is important or not. Otherwise, they will have an unnatural, "frozen" appearance.

Another danger in filming is the possibility of someone's leaving a hammer of pair of pliers on the scene in full view of the camera. It is very embarrassing to be watching rushes projected—pronounced perfect takes, perhaps—when someone suddenly discovers a giant hammer or screw-driver in the scene.

The Bears register surprise and terror upon seeing that someone has come

Baby Bear and Goldilocks with her two extra heads.

into their house while they were gone. They begin a comic detective act—sneaking around on tip-toe, "shushing" each other, looking under chairs and up the chimney.

At last they discover Goldilocks asleep on the bedroom floor. As she awakens she sees the Bears looking down at her—hazily at first (camera out of focus for this shot). Then as her vision clears and she is really awake, she jumps up in terror, with the Bears' growling menacingly around her. Things look pretty black of Goldilocks—but suddenly an idea rescues her. No, she doesn't jump out the window as a more simple Goldilocks does in the storybook. She tells the Bears about the Blankety Blinker Mattress, which will let them sleep soundly and comfortably—and probably improve their dispositions, too.

So they buy the mattresses (of course!)—a big one for Papa Bear, a middle-sized one for Mama Bear, and a tiny one for little Baby Bear. So Goldilocks was the golden-haired girl to the Bear family after all, and everything ended happily.

It wasn't quite the end for us, however. With a deadline staring us in the face, many weary evenings were spent in sound recording, matching narration with action, and editing. But our frenzied efforts were not in vain; our work was completed and a print delivered—just under the wire. They used it about five days later. And that's the way it goes.

"December Surf" *Werner Stoy, San Francisco, Calif.*

First Award—Advanced Class

■ We can learn several important things from a study of this very fine marine. The average photographer, for example, goes out in search of his landscape subjects only when the weather is at its best, but observe that the dull, cloudy day is the principal factor which determines the very interesting mood which is to be found in this picture. From the point of view of composition, observe the interesting grouping of the three dome shaped forms, the rock just behind the wave on the right and the two hills in the distance; and notice how the general form of the wave is curved in the opposite direction, acting as a variation of the other three forms. The camera here was rather close to the wave so that a comparatively fast exposure was required in order to avoid too much movement, but notice that movement in the wave has not been stopped completely. As a generaly thing a wave form has a much more natural appearance if the exposure is adjusted so that the movement of the water is not actually stopped. When movement is stopped there is great danger of the wave assuming a frozen, unnatural appearance in the print. This suggestion would not apply to the present picture, but in cases where a somewhat higher camera position is adopted, it is a good idea to plan to adjust the exposure so that full sharpness is obtained in the surging green part of the wave which has not yet broken, leaving the suggestion of movement through slight unsharpness to be carried only by the most actively moving parts of the wave. If lighting conditions and movement of the subject had permitted, a smaller stop would have been desirable here in order to hold somewhat better focus in the foreground. In this picture, however, the slight unsharpness of the foreground presents no particular difficulty.

Data: Contax; 85 mm. Sonnar F:2; 1/500 sec. at F:2 on Agfa Supreme with R-10 filter; dull day; 11 x 14" print on Agfa Crystal Stipple.

Second Award

Advanced Class

"Desert Iguana Lizard"
Harry H. Haworth
Pasadena, Calif.

■ The photographer with an interest in natural history subjects and some understanding of where to find and how to handle them has a real advantage in exhibiting. A straightforward photograph enhanced by decent spacing and a revealing pose, finds ready acceptance. First, because such subject matter has great intrinsic interest value, and second, because this field is rather neglected by American exhibitors. In this case the disposition of the tail, and the impetus given to the swing which the tail sets up, because of the fact that the shadow continues the curve, gives the picture a feeling of movement which lifts it out of the ordinary. The alertness of the pose is also a factor which adds interest, and the fine rendering of detail and texture is of course very important, because it gives the observer the impression of obtaining a very intimate and revealing view of the subject.

It seems unfortunate to us that there is a rather abrupt falling off of focus almost exactly at the point where the tail joins the body. This combined with the nature of the background gives the observer the impression that the background curves upwards as it recedes. This of course is not true. We simply point this out as an example of the importance of paying attention

(Continued on page 96)

Third Award

Advanced Class

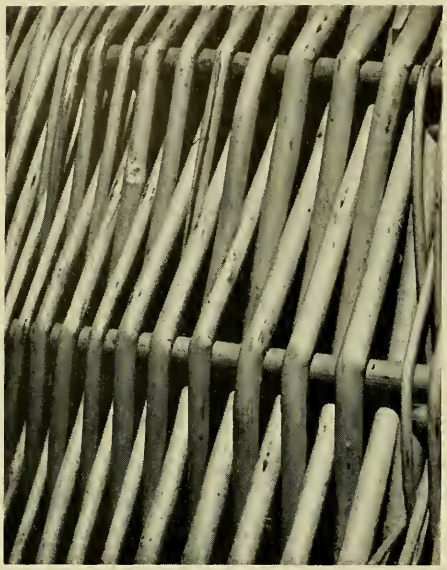
"Reefer Boy"
W. Ellis Teas,
Pasadena, Calif.

■ Mr. Teas has caught a sinister quality in this face which is in keeping with his title. The expression and the lighting are, of course, the major factors in creating this impression, but the observer should note the psychological importance of crowding the face from above and below with the hat and the collar of the coat. This use of the costume helps greatly in adding a furtive quality to the pose, which enhances the impression which is desired. In an ordinary portrait the line of the coat collar would not be pleasant, but it appears to be in keeping with the idea behind this picture. Purely from the point of view of spacing, there is rather too much at the top, but trimming from the top does not appear to work for two reasons. First, it detracts from the psychological effect mentioned above, and second, it makes the line of the hat brim too strong, because it then runs out of the picture at the upper left. All aspects considered, we are inclined to feel that the present presentation cannot be improved by trimming.

Data: 9 x 12 cm. Bee Bee, Carl Zeiss Tessar F:4.5 in compur; 1/5 sec. at F:8 on Defender XF Ortho in D-76; 11 x 14" print on Agfa Brovira glossy; slight sulphide toning.

Fourth Award

Advanced Class



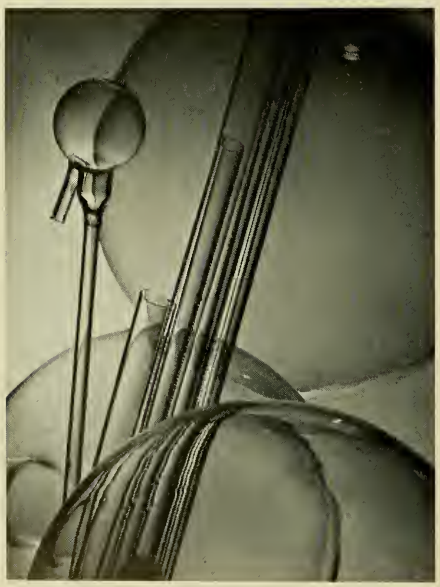
"Wicker"
F. H. Ragsdale,
Los Angeles, Calif.

■ This picture is technically very fine, and that undoubtedly has helped it to earn a place in these competitions. The selection of what is to be included in the picture space seems rather good here, assuming the basic idea is to take a very small part and show it much greater than life size. In the 11 x 14" print the wicker must be two or three times actual size. The difficulty, as we see it, is that this picture must attract primarily as pattern. It is not wrong as a design, but we cannot see that it is particularly interesting as such. We think that the principal weakness is probably due to a lack of emphasis—there is no place in which the eye can comfortably come to rest. Compare this picture as pattern to the fifth award, for example, and note the very definite points of emphasis in that picture. Given a selection of wicker furniture, it would seem to us that stronger design elements than these could be discovered in it. For example, one could take advantage of some point where the weave changes in order to establish a point of emphasis. When we set out to make a portrait, we look for interesting faces as subject matter. If we are working with pattern we must likewise look for interesting design elements.

Data: 4 x 5 Graphic; Super XX film in Glycin; 11 x 14" print on Velour Black DL in D-73.

Fifth Award

Advanced Class



"Abstraction in Glass"
Maurice J. Schlatter,
Pasadena, Calif.

■ This is primarily a pattern such as is the case with the previous award, but notice the much greater degree of emphasis which is to be found in this design. There is a very strong point in the small sphere at the end of the tube, and a secondary point of emphasis where the group of tubes intersects the three large spheres. We strongly feel that a successful design, particularly where it is presented as a picture in itself, needs such emphasis. The most attractive quality here, however, is not so much the actual pattern as the lovely harmony of tone values achieved within rather a short scale. The small bright reflection in the upper right corner is definitely a distracting spot. Mr. Schlatter no doubt appreciates this since he has worked it down to some extent. We feel, however, that this should be toned down to the point of elimination if possible.

Data: 9¼ x 12½" bromide print.

"Promenade" *Stanley Rayfield, Forest Hills, N. Y.*

First Award—Amateur Class

■ This picture earns its place because of the originality of its conception and the fine simplicity and balance of its composition. Technically it is very poor, apparently due to prolonged development, which contributes to graininess in the negative, and an unnecessarily great enlargement resulting in a loss of tone values and objectionable graininess in the print. It is plain that Mr. Rayfield felt the desirability of placing his emphasis on the stark simplicity of this very interesting combination of line and mass, and that he was correct in feeling that strong contrast would work in that direction. However, the subject matter itself is so devoid of any extraneous detail that it appears unnecessary to carry this treatment to the present extreme, with the subsequent loss of good quality in the print. It would seem that well rendered textures in both water and stone promenade would add an element of interest to the picture which would help, and which could not possibly be strong enough to detract from the effect desired. We strongly feel that this subject is worth a new negative when the lighting is again right.

Data: 2¼ x 2¼ Super Ikonta B; 1/100 sec. at F:5.6 with G2 filter; 13 x 16" print on PMC glossy in D-72, 2:1.

"Flower of Japan"
Joe Wiener,
New York, N. Y.

Second Award

Amateur Class

■ This is a well planned shot. The heavy overhanging roof gives us the feeling of Japanese architecture in very deft fashion. This is a good instance of how a characteristic bit can often give a vivid impression of the whole. The tree form has a decorative quality that is in keeping with our feeling for things Japanese, and it also helps to support the weight of the roof. Some may object to the central position of the figure, but with the setting as it is, this appears to be about the best solution of this placing problem. If the figure were moved to the left there would be too much weight on that side, and if moved to the right, it would get tangled up with the leaves of the tree. Notice that the central placing is made more logical and satisfying by having the figure look directly at the camera. A feeling of unbalance would result were the head turned toward either side.

Data: Ikoflex III; F:2.8 lens; 1/50 sec. at F:10 with GR55 filter; E.K. Panatomic X film; 13½ x 14½" print on Artex K-32; gold toned and waxed.

James Decker,
San Pedro, Calif.

Third Award

Amateur Class

■ Taking things as a whole, the hands are very well posed here. We can see only one point of possible improvement. If the right hand were not bent backwards at the wrist quite so much, the change in direction of the contour would not be so abrupt, and we would obtain a slightly more graceful line. The abrupt change of direction where the wrist meets the hand rather calls attention to itself under these conditions. Such an adjustment would throw the right hand slightly higher, but this could be compensated for by raising the left hand correspondingly. We think that Mr. Decker was wise to include a generous portion of the arms to give good support for the hands, but feel that only a little more space above the hands would eliminate a slight feeling that they are now rather crowded toward the top of the print. It might also help to bend the thumb of the right hand just a little more so that its direction of movement would not be exactly the same as that of the first finger.

Data: Graflex with Zeiss Tessar lens; 1/25 sec. at F:8 on Defender XF Pan in D-76; lighting by Photofloods; 11 x 14" print on Defender Velour Black in D-72.

Fourth Award

Amateur Class

Henry E. Timby,
San Francisco, Calif.

■ This picture is technically fine and the photographer has caught a most appealing expression on his attractive little subject. Apparently the trimming of the picture was governed by the desire to balance the shoulders along the base of the print. This in itself may be desirable, but it results in placing the eyes too far to the left in the picture space and in a general crowding of the head. This is an outdoor shot of an extremely lively little subject. Those two qualities both call for space about the head if the composition is to be in keeping with the implications of the subject matter, and with any type of subject, good spacing would demand at least a little more space on the left when the head is turned so definitely in that direction. In this case we feel that there should be more of the bust included, a good deal more space on the left, a little more at the top and on the right.

Data: Graflex camera; Agfa Super Pan Portrait film with G filter; developed in DK-20; 8 x 10″ glossy print.

Fifth Award

Amateur Class

"Mighty Manhattan"
C. B. Phelps, Jr.,
Detroit, Mich.

■ The principal buildings are nicely balanced in the picture and the bridge cables in the foreground are well disposed, so that they do not interfere with any important part of the scene. It seems to us that this picture is about as fine as one could hope for under the lighting conditions which existed at the time it was made. If we let our imaginations work, however, it becomes a bit disappointing to us because we can visualize a much more effective shot under a strong directional light which would create a bold pattern of light and shade among the gigantic buildings. Perhaps it is unfair to Mr. Phelps for us to look at the picture in this way. We do not do it in an attempt to belittle what is admittedly a good picture. Our purpose is to suggest to the reader that for purposes of his own instruction he should look at all pictures in this way, because it is the finely developed power of imagination which distinguishes the outstanding artist from the ordinary run-of-the-mill picture maker.

Data: 9 x 12 cm. Voigtlander Bergheil; 13.5 cm. Helier F:4.5; 1/50 sec. at F:5.6 on Agfa Super Plenachrome in Agfa 17 M; 13 x 16″ print on E.K. Vitava Projection B 3 in D-52.

Monthly Competitions

Scoring for Club Trophy Cups

The following won prizes for their clubs in the Advanced Class: Werner Stoy, for the California Camera Club; Harry H. Haworth, W. Ellis Teas and Maurice J. Schlatter, for the Pasadena "Y" Camera Club; F. H. Ragsdale, for the Rothschild Camera Clinic.

The following won prizes for their clubs in the Amateur Class: Stanley Rayfield and Joe Wiener, for the Miniature Camera Club of New York; James Decker, for the Camera Club of San Pedro; and C. B. Phelps, Jr., for the Detroit Camera Club.

The following prize winner has no club affiliation: Henry E. Timby.

Contributing Clubs

Amherst Camera Club (Mass.)
Beachcombers Camera Club (Long Beach, Calif.)
Bridgeport Camera Club (Conn.)
California Camera Club (San Francisco)
Camera Club of San Pedro (Calif.)
Detroit Camera Club (Mich.)
E.P.I.C. Pool of San Francisco
Fort Dearborn Camera Club
Fotoklub Zagreb (Jugoslavia)
Glenwood Camera Club (Philadelphia, Pa.)
Green Briar Camera Club (Chicago, Ill.)
Jackson Park Camera Club (Chicago, Ill.)
Light & Shadow Club (San Jose, Calif.)
Los Hidalgos (Pasadena, Calif.)
Miniature Camera Club of New York
Miniature Camera Club of Oakland (Calif.)
Pasadena "Y" Camera Club (Calif.)
Photographic Society of San Francisco
Portland Camera Club (Maine)
Powell River Camera Club (B. C., Canada)
Queen City Pictorialists (Cincinnati, Ohio)
Riverside Pictorialists (Calif.)
Rothschild Camera Clinic (Los Angeles)
Salt Lake Camera Club (Utah)
Sierra Camera Club (Sacramento, Calif.)
Signa Phi Nothing (Sacramento, Calif.)
Sonoma County Camera Club (Guerneville, Calif.)
South Plains Camera Club (Lubbock, Texas)
Telephone Camera Club of Manhattan
Toledo Camera Club (Ohio)
Utica Camera Club (N. Y.)
Yellow Springs Camera Club (Ohio)

STANDING OF CLUBS

Large Clubs Advanced Class

California Camera Club	5
Manhattan Camera Club	3

Small Clubs Advanced Class

Pasadena "Y" Camera Club	15
Signa Phi Nothing	4
Rothschild Camera Clinic	2

Large Clubs Amateur Class

Miniature Camera Club of New York	10
Amherst Camera Club	5
Photographic Society of San Francisco	2
Detroit Camera Club	1

Small Clubs Amateur Class

Camera Club of San Pedro	3

(Continued from page 91)

to the point at which focus begins to change. The more abrupt the change of focus is the more important it is to carefully determine the point at which the change occurs. As a general thing the change of focus should not occur at points at which the eye is making a change of direction. By that we mean that it should not occur precisely at the bend in a wandering stream, or as in this case, precisely where the tail changes direction with respect to the body. Admittedly it is very difficult to see these things at the time of making the picture—they show up later as a sort of optical illusion in the print.

Data: 11 x 14" bromide print.

SUMMARY OF COMPETITION RULES

1. Open to all, amateur or professional, club member of non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue.

What Is Your Photographic I. Q.?

Determine your photographic I. Q. with the following test. Read the statements as given below and check the correct answers. The perfect score is 100%. Deduct 10% for each error. Excellent rates 90%; very good, 80%; good, 70%; fair to bad, below 70%. Compare your answers with those on page 103.

1. The pictorialist should, whenever possible, place the main point of interest of his study in the very center of the photograph.
   ☐ True
   ☐ False
2. A photographic bas-relief will never be found in a salon.
   ☐ True
   ☐ False
3. Instruments employing a Bunsen disk are available today for use in determining the density of a negative and the length of exposure time needed in enlarging.
   ☐ True
   ☐ False
4. Exposure of four feet of 16 mm. movie film (two feet, 8 mm.) is considered much too short for the average scene of an amateur movie subject.
   ☐ True
   ☐ False
5. Kodachrome film, Type A; uses a lower Weston rating when used with photofloods than it does in the daytime employing the "daylight" filter.
   ☐ True
   ☐ False
6. If a fixing bath has a tendency to froth easily, it can be assumed that it has been freshly made.
   ☐ True
   ☐ False
7. The best exposure that the miniature worker can make for fine grain work is the shortest exposure that will produce sufficient shadow detail.
   ☐ True
   ☐ False
8. The sulphite in a developer is generally one of the first chemicals put in the solution.
   ☐ True
   ☐ False
9. The image formed by a tilted camera is "true."
   ☐ True
   ☐ False
10. The use of a soft focus lens in making an original exposure, or a diffusion device used on the enlarger lens, will give the same result on the finished print.
    ☐ True
    ☐ False

Correspondence*

Correction

Dear Sirs:

I suppose you have already had your attention called to the error which appears in my article in the January Camera Craft.

In the text the reference to Figures 15 and 16 are transposed so that where Figure 15 appears one should read 16 and vice versa. Fortunately the text makes the meaning clear. However, for the sake of those who may have been confused, it might be a good idea to run a brief correction next month.

Sincerely,
William Mortensen.
Laguna Beach, Calif.

Challenge

Dear Sir:

I am writing to you in regard to the January issue of Camera Craft magazine in which there was a mistake in the group in which you placed our club. The Pasadena "Y" Camera Club should be in the small clubs—advanced class. Our club has only 35 members including both the active and inactive. We would appreciate it very much if you would change our 7 points, which we received in the January competition. We wish to thank the judges for being so generous to our club in its first month's entrance of your contest. Our main reason for wanting to be put in the small club division is that the Pasadena Pack Rats have challenged us to compete against them and we can not do that if we are in the large club class. Our club is a very good producer and we hope to enter at least 10 prints each month, as we think the Pack Rats have won the cup once too often. We are going to try and make it a little harder for them in the coming year and hope that it will be the Pasadena "Y" Camera Club that gets the cup instead of the Pasadena Pack Rats.

Sincerely,
W. Jerome Collins.
Secy. Pasadena "Y" Camera Club.
Altadena, Calif.

A Competition For Young People?

Dear Sir:

I am writing this letter concerning something that would be different for your magazine, which no other magazine has at-

*Readers are requested to add a postscript to letters intended for this department, expressly granting permission to publish, **and are urged to write as briefly as possible.**—Ed.

tempted to do as yet. I am fifteen years old and very interested in art and photography. I think that younger generations are just as interested in pictures as many of the professionals and advanced amateurs. Why not give us a chance in a contest? If you had a contest of this sort you could call it "Cadet Camera Craft Contest," or whatever you would choose. And have the contest for younger folks eighteen years old and under. I think your magazine is one of the best on the market, and I feel you will take an interest in your customer's letters. So that is why I have written to you.

Sincerely,
Charles Cicek.

Kelso, Wash.

Camera Craft will be glad to hear from eligible readers who would like to take part in such a competition.—Ed.

Club Notes

Edward Weston's photographs will be exhibited during the coming months in the Southwest and photographers in this area will do well to mark the dates and places on their must list. During January, at the Sternberg - Davis Gallery, Saint Philip's Plaza, Tucson, Ariz.; March, The Taylor Museum, West Dale St., Colorado Springs, Colo; April, Denver Art Museum, Denver, Colo.

1940 Kodak Exhibit Tour will appear in the following cities during February: Baltimore, Md., Feb. 2-5, Enoch Pratt Library; Birmingham, Ala., Feb. 9-11, Hotel Thomas Jefferson; Buffalo, N. Y., Feb. 15-18, The Statler; Cleveland, Ohio, Feb. 22-25, The Statler; Detroit, Mich., Feb. 29-Mar. 4, The Book-Cadillac; Jacksonville, Fla., Feb. 15-17, The George Washington; Louisville, Ky., Feb. 3-5, The Kentucky; Miami, Fla., Feb. 24-26, The Alcazar; Pittsburgh, Pa., Feb. 9-12, The Roosevelt; West Palm Beach, Fla., Feb. 21-22, The George Washington. Other showings will be listed next month.

The Continental Monthly Print Contest, sponsored by the Photographic Society of America, 10 Park Ave., New York City, is open to every camera club in North America, whether a member of the Society or not. The contests will continue until May of 1940 and a complete set of rules may be obtained from the above address. Prints from individuals will not be accepted, entries must be made through the club.

The Manhattan Camera Club, of New York City, is pleased to announce the Club has been declared the winner of the Bronze Medal in the Debrecen Salon in Austria.

The Photographic Group of Philadelphia, Pa., meets every Tuesday evening at 8:00 P.M. at the Grant School Bldg., 17th and Pine Sts. Judging from the list of programs, recorded in their club bulletin, "Record Shots," this group offers an interesting and informative series of meetings for their members.

The Niagara Frontier Camera Club Council was recently organized in Buffalo, N. Y., with 15 member clubs. Other groups in the counties of Erie, Monroe, Niagara and Orleans are invited to get in touch with Mrs. M. R. Barcellona, 236 Wallace Ave., Buffalo, N. Y., for further details.

The Montclair Trust Co., of Montclair, N. J., are now accepting prints for their annual competition, closing date Jan. 31, 1940. Cash prizes of $60.00 are offered in three classifications with two additional special awards. Write for entry blanks and particulars to the above address.

Dr. Julian Smith's One-Man Show will be exhibited by the Miniature Camera Club of New York in their Mezzanine Gallery, Midston House, Madison Ave. and 38th St. The Gallery is open to the public every day, including Sundays, and the show will be on view from Jan. 15th to Feb. 15th. Don't miss this show by one of the world's finest portrait photographers!

Oakland's successful course in motion picture photography will be repeated during the coming semester at the Oakland Evening High School, Park Blvd. and Hopkins St., Oakland, Calif. The classes will again be directed by Mr. Virgil Muhler, experienced cinephotographer. The course will cover camera technique, titling, editing, and composition, emphasizing the practical fundamentals of motion picture photography. Classes begin Feb. 1st, at 7:15 P.M. and continue each Thursday thereafter for 16 weeks. Registration fee is only $2.00, which also permits the student to enroll in any other course offered by the Oakland Evening High School Adult Education Program.

One Man Shows will be exhibited during the next two months at the Brooklyn Institute, 30 Lafayette Ave., Brooklyn, N. Y. During January, prints from Gayle Foster, A.R.P.S., for February an exhibition of Walter E. Owen's photographs.

The Rockefeller Center Camera Club meets the last Tuesday of each month in Room 660, International Bldg., Radio City, New York. Print competitions are held each month and their Second Annual Salon is planned for the Spring of 1940. Instructional classes and darkrooms are available and photographers are invited to meetings and membership.

The Third Annual Short Course in News Photography will be held from March 6 to 9, 1940, at Kent State University, Kent, Ohio. More than 200 practicing news photographers participated in last year's course. Write William Taylor, Chairman, at the above address for complete details.

The Antwerp Photographic Society "Iris," of Antwerp, Belgium, has announced that, due to the difficult international relations of the moment, the XIIIe international Christmas Salon, which was to have been held late in December, has been postponed.

The Gasparilla Camera Club, 438 W. Lafayette St., Tampa, Fla., is a new group organized exclusively for women. Meetings are held the first Wednesday of each month.

The Youngstown Camera Club, of Youngstown, Ohio, recently held a novel excursion. An all-expense trip was arranged, through

the Erie Railroad, to Cleveland where the group attended a hockey game. Front row seats were included to insure an unobstructed view for members' lenses.

P. Douglas Anderson, F.R.P.S., well-known photographer, will again conduct three San Francisco and two Oakland photography classes for the University of California Extension Division. San Francisco classes will be held at 540 Powell Street. Opening dates and times for the classes are: Advanced Photography: January 8, 7 P.M.; Miniature Cameras: January 11, 7 P.M.; Darkroom Technique: January 9, 7 P.M. The classes in advanced photography and in miniature cameras will also be given in Oakland, starting January 10 at 4:10 and 7 P.M. and January 12 at 7 P.M. respectively.

A group of photographers met recently in New York City to further plans for the formation of an intimate circle for the betterment of their mutual interest, photography. Plans were discussed for establishing a combination studio and darkroom. Details may be obtained from Albert Greenfield, 425 Fourth Ave., New York City.

The Fourth Annual Salon of the Photographic Society of America will be exhibited during February at the Franklin Institute, Benjamin Franklin Parkway at 20th, Philadelphia, Pa.

Amateur photographers in Oakland, Calif., will again have an opportunity to take the excellent course in Elementary Photography conducted by Roland Calder, at the Technical Evening High School, Broadway and 47th. The first meeting will be held Jan. 29th, at 7:15 P.M. and each Monday evening thereafter for 16 weeks. The modest $2.00 fee also permits students to enroll at all other Oakland Adult Education Classes. The course will cover the selection and use of the camera, developing, printing and enlarging, with the major emphasis on practical demonstrations. A field trip will be another feature of the course.

Good news to this department was the announcement in the Anastigmat, Club Bulletin of the Telephone Camera Club of Washington, D. C., that the paper's editor, Carl H. Claudy, Jr., was drafted for another season of editing. As the man responsible for one of the most interesting club papers, we congratulate the club for its decision and wish Mr. Claudy good writing for the coming year.

The Newark Camera Club, 683 High St., Newark, N. J., is fortunate in having one of the most interesting club papers this department has seen. "The Ground Glass," whose editor is as far as the bulletin goes anonymous, features signed articles by the members. Perhaps, because the membership of this club is gifted with the ability to "put it on paper," these articles are uniformly good and interesting. Such a concentration of ability seems unlikely and we would rather attribute it to the wholehearted cooperation of the members with the editor. We pity the poor editor who, faced with the lethargy of the membership, is forced to go it alone. The editor of your club bulletin is deserving of each member's active support as the result is not individual but reflects on the club as a whole.

The South Shore Camera Club, of Babylon, Long Island, N. Y., has established "Professor Quiz" nights as a regular feature of their monthly programs. Questions are carefully balanced so that all phases of photography are covered. They report great interest and success with this activity.

The Dover Camera Club, Inc., of Dover, N. H., is a new group organized six months ago with a membership of thirty actively interested photographers. Meetings are held semi-monthly. Further details may be obtained from Mr. Tifft, Secretary, Tifft Road, Dover, N. H.

The California Camera Club, of San Francisco, Calif., will celebrate the Fiftieth Anniversary of its founding during April of this year. It speaks well for both this group and San Francisco that after 50 years of endeavor the club has never been more vigorous and active.

The Burbank Camera Club, of Burbank, Calif., held its first Annual Salon in December, 1939. Mr. Fred Archer acted as judge and the event was pronounced most successful. The group reports great progress in their members' work during the year for which they thank the judges whose constructive criticism made this possible.

The Fort Dearborn Camera Club, 75 East Wacker Drive, Chicago, Ill., offer the possible solution of two important club problems. First, to encourage entries and to insure impartial criticism, prints submitted for criticism are to have titles but no signatures. A three months trial has proven the method to be very effective. Secondly, all prints submitted are automatically placed at the disposal of the Print Committee. This gives the Committee a fine selection of prints for use in club activities and the effectiveness in shown by the club's record in various contests, including CAMERA CRAFT'S MONTHLY COMPETITION.

The Vancouver Photographic Society, of Vancouver, B. C., Canada, offered its members a novel contest during a November meeting. A competition was held for homemade gadgets. The turnout undoubtedly held much of interest for the members and other clubs should find such a contest a fine one for their own group.

The Photographic Society of America reports that the flood of requests for Loan Exhibit Service and for the Club Print Interchange has completely swamped the facilities. Additional exhibits are being collected rapidly and schedules are probably now proceeding smoothly.

The Junior-Intermediate Photo Club of the Young Men's Hebrew Association, New York City, is a camera club for young men between the ages of 13 and 18 years. All interested photographers are invited to join. Write to Irwin Berkman, 212 West 104th St., New York City, for further information.

Members of the Sierra Camera Club, of Sacramento, Calif., have cooperated with the Community Chest to produce a movie that was used in the Chest's 1939 Drive.

FORTHCOMING EXHIBITIONS
SEE JANUARY
CAMERA CRAFT
Will be published next in the March issue

Notes and Comments

New Tenite Print Tongs have been introduced by the Fink-Roselieve Co. The new tongs molded in a single piece without springs, screws or joints are made from the new Tenite plastic produced by the Tennessee Eastman Corporation, of Kingsport, Tenn. The toughness and resilience of the plastic is such that there is no danger of breakage.

The Eddy Automatic Print Washer, manufactured by the Eddy Washer Co., 209 6th St., Racine, Wis., offers important savings in time and space and economy in water consumption. These circular tanks are provided with an adjustable baffle that keeps the prints circulating in the water. The tanks are also provided with outlets at different levels by which the water supply may be adjusted to the number of prints being washed. Constructed of rust-proof, chemical resisting metal, the tanks are available in three sizes: 12, 16 and 22 inch diameters; prices $10, $13.50 and $18, respectively. The largest tank has a capacity of 3 to 4 dozen 11x14 prints. Illustrated circular available from the above address.

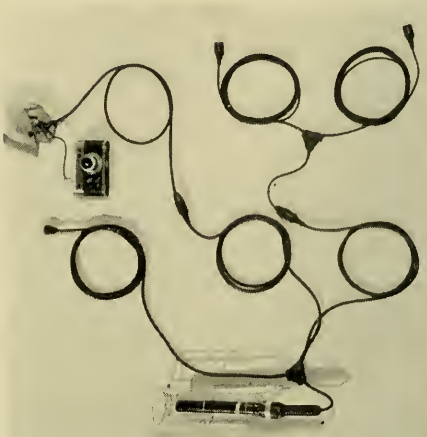
The School of Design, 247 E. Ontario St., unique Chicago art school whose students find the road to art, science and technology at one and the same time, will begin its spring semester February 12, director Laszlo Moholy-Nagy announces. Courses lead to a designer's diploma after four years and an architect's degree after six years. The curriculum is patterned largely after that of the Bauhaus, world famed art university where Prof. Moholy was a member of the faculty.

A traveling exhibition of the work of the students started at the Toledo Museum and is circulating the country at present. It already is scheduled for Beloit College, Beloit, Wis.; Utah Art Center, Salt Lake City; and Washburn College, Topeka, Kans., from which it will go to different cities in that state.

A new Wabash Exposure Guide for Flash Pictures, Flood Pictures, and Home Movies has just been published. Its 16 pages list all popular roll films, film packs, miniature films and cut films, with complete exposure tables for their use with any camera. A free copy will be sent upon request to Wabash Photolamp Corp., 335 Carroll St., Brooklyn, N. Y.

"Better Outlines For Your Movies" is the title of a new booklet being distributed by the Besbee Products Corp., Trenton, N. J. The booklet describes the use of the Besbee Effectograph, a device that permits the home movie maker to obtain new interesting results.

A new service for New York Cinefans has been inaugurated by Rabsons, 111 West 52nd St., New York City. Their new motion picture department, headed by the experienced Mr. Fred Tomlin, offers an editing and titling service, expert movie counsel and technical guidance.



Barnett Photoflood Synchronizer

A Synchronizing System for Photoflood Lamps has been introduced by the Barnett Laboratories, 160 No. Wells St., Chicago, Ill. This system originally constructed for clinical photography has now been adapted for the amateur and professional photographer. The outfit, with more than 40 feet of rubber molded wire in its synchronizing system, includes an electrical resistor and a Ley synchronizing switch. With the resistor in use, the lamps burn with just enough light for composing and focusing. If the resistor is removed the photoflood lamps can be made to act like flashbulbs. The system not only is a great economizer of lamps and current but also greatly increases the comfort and ease of the photographer's subjects. The outfit is priced at $9.95 and complete details may be obtained from the above address.

The Union Pacific, recognized as pioneers in streamlined trains and other notable advances in railroad transportation, recently mailed unusually attractive calendars on which the reproductions of scenes from the territory the road services were all made from original Kodachrome transparencies. The transparencies were produced by the Union Pacific's own Photographic Department.

Flash pictures in color, indoors or out, day or night are now possible with the new photoflash lamp coated with a color corrected blue filter lacquer, introduced by the General Electric Co., Nela Park, Cleveland, Ohio. This new lamp will be called G. E. Mazda Photoflash Lamp No. 21B. Further details may be obtained from the address above.

Packard Motor Car Co. opens huge camera contest. On the heels of huge successes with Camera Contests at New York and Chicago, the Packard Motor Car Company this week announces a spectacular nation wide amateur photographers' competition, starting January 15. Five new Packard cars, $3,600 in cash and 150 awards of merit are offered by the company as prizes.

Official rules and entry blanks may be obtained from Packard dealers. Camera fans wanting to enter need only go to their local Packard dealer to learn all details and to find a 1940 Packard car to photograph. Packard cars in any setting may be photographed for entry. One point in the rules is emphasized—a 1940 Packard must be used.

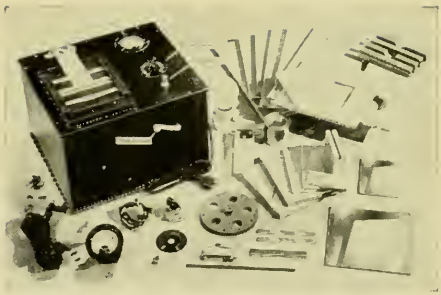
Any person with a camera, provided he is an amateur, anywhere in the country may compete. Each picture must have an official entry blank attached and all entries must be delivered or mailed to the Picture Packard Contest Department, Packard Motor Car Company in Detroit before midnight March 15. Entries are restricted to black and white subjects.

The Agfa Ansco Corporation was merged, on Dec. 29, 1939, with General Aniline & Film Corporation. Agfa Ansco will continue to operate under the same management and policies.

Min Largers, a new line of enlargers for the amateur photographer has been introduced by Leonard Westphalen, 506 No. State St., Chicago, Ill. Mr. Westphalen is well known to amateurs and professionals alike due to many years work as a commercial photographer and as a very successful exhibitor in salons. The experience derived from these years of photographic work has gone into the design of the Min Largers. Several models are available for negative sizes from 35 mm. to 4x5 inches. Features include: massive, cast bases that prevent vibration; focusing with a screw thread mount that provides micrometric action; a locking clamp that securely holds the enlarging head in position on the supporting upright; a convenient foot switch as standard equipment; a high-low light control and double condensing lenses. Available with or without a Wollensak Enlarging Velostigmat. Confident of satisfaction, Mr. Westphalen is making a 10-day trial offer. Write the above address for complete details.

35 mm. films developed and enlarged for $1.00 is a service of the Universal Photo Service, Box 612G, La Crosse, Wis. Each 36 exposure roll is fine grain developed and each good negative enlarged to 3½ x 4½ inches. Free mailing bags will be sent upon request.

A new Home-Study Course in Photography is now being offered by the Academy of Photography. Using the unique "Single Unit System" of study, the course is designed to simplify photography's many problems. The course runs for a period of 13 weeks and it covers every phase of the subject from focusing and exposure, through darkroom work, to trick photography and the making of color prints. A free book will be sent to anyone writing to the Director, Academy of Photography, 115 East 23rd St., New York City.



Curtis Model K Color Printer Kit

An economical, simplified color printing system has been introduced by the Thomas S. Curtis Color Laboratories, 2063 Gage Ave., Huntington Park, Calif. This system seems ideal for the amateur photographer as it requires no elaborate equipment and the technique has been standardized into a simple, uniform method, the Orthotone Process. A new 4x5 Model K Color Printer, which sells for $50.00 factory assembled, is available in kit form for home assembly for only $16.50. The complete story of this new technique can be obtained in the latest Curtis book, "Color Printing Simplified," available for 25c from the above address.

The Goodspeed Flash Synchronizer is an outfit that is entirely new in design. Its small size is made possible by eliminating the battery case as the batteries fit neatly into the reflector. It requires no cocking or winding, is easily adjusted for synchronization and does not hammer the shutter. The bulb socket is adjustable for centering all sizes and a handy ejector makes it easy to remove hot lamps. The Standard Goodspeed model, fitting most between-the-lens shutter cameras, is priced at $13.50. Special models are now available for Leica, Contax and Super Ikonta B cameras, priced at $15.00. Further details on these models as well as the standard model may be had from Goodspeed, Inc., Dept. N., 220 Fifth Ave., New York City.

A beautiful new catalog, describing the courses and plant of the New York Institute of Photography, has just been published. This excellent school offers instruction in all branches of Commercial, Advertising, News, Industrial, Portraiture, Color and Motion Picture Photography, by personal attendance and home study. Established for 30 years, the Institute now has nine studios occupying 16,000 square feet of space. The catalog not only describes by picture and text this extensive plant and its instructors but also reproduces many fine full-page illustrations by students and instructors. A copy of the catalog may be obtained free upon request to the New York Institute of Photography, Dept. 69, 10 West 33rd St., New York City.

A free catalog on enlarging lenses has been offered by the Wollensak Optical Co., 620 Hudson Ave., Rochester, N. Y. Wollensak Enlarging Velostigmats are famous for their fine definition. Prices from $13.00 up.

Ace Genuine Hard Rubber Trays, manufactured by the Ace Hard Rubber Co., 12 Mercer St., New York City, are built for lifetime use. Constructed of hard rubber all the way through, the Ace Trays eliminate surface chipping and corrosion. They are cleaned after use by simple rinsing. Available in all sizes from 4 x 6″ to 20 x 24″. Further details are available from the above address.

The employees of Willoughby Camera Stores, Inc., of New York City, planned and executed a unique form of Christmas Greeting to Mr. Charles G. Willoughby, founder of the firm. When Mr. Willoughby opened his Christmas morning copy of the New York Times, he received, in his own words, "the greatest thrill of his life." An advertisement expressing the greetings of the Willoughby employees met his eye and it is easy to understand his pleasure and appreciation. The good feeling between employer and employee is heightened in this organization by the fact that it is a cooperative group, each employee sharing in the profits of the firm.

Prices have been reduced on Praxidos and Bee Bee Enlargers, announces Burleigh Brooks, Inc., 127 West 42nd St., New York City, distributors of these fine precision instruments. In some cases, the prices have been reduced as much as 42%. Details on the construction and features of these enlargers are given in the New Burleigh Brooks catalog, a copy of which will be sent free upon request to the above address.

The popular Agfa Ansco Texture Screens, first introduced in an 8 x 10 inch size, are now available in two new sizes, 5 x 7 and 11 x 14 inches.

The F-R Hi-Spot is a new spotlight, a miniature of giant and baby Hollywood models, introduced by the Fink-Roselieve Co., 109 West 64th St., New York City. Priced at only $9.95, the new Hi-Spot offers the following important features: finger tip focusing from a large to small spot, heat dissipating fins, sturdy die cast construction, perfect centering of filament in relation to the reflector, and a special 150 watt projection lamp. A free booklet, "Third Dimensional Portraiture—How To Get It," by John Hutchins, is available upon request to the above address.

Free copies of the Kalart Speed Flash Manual can be obtained from the Kalart Co., 915 Broadway, New York City. The third printing of this informative booklet has just come off the press and its 36 pages offer exposure charts, details on the use of the Micromatic Speed Flash, information on Synchro-Sunlight photography, etc.

Our Book Shelves

Pictures With A Purpose, How They Are Made, by Charles E. Kerlee. Published by the Camera Craft Pub. Co., of San Francisco, Calif. 80 pages, 8x10, 48 full-page plates and 48 diagrams, Circla binding. $2.50.

In this book the reader achieves the enviable position of being able to watch a famous photographer at work and to have him explain his reasons for each operation. You are with him in his studio, on location and in the darkroom. Mr. Kerlee explains in detail the purpose for which the picture is to be used, the posing of the models, the lighting and exposure and the developing and printing.

Twenty-four different subjects, offering different problems, are considered thus and each of the finished prints is reproduced in full-page size. The reproductions are exceptional. Using the finest halftones and letterpress, the prints were then varnished to give them the brilliance and sparkle of the originals.

Although the pictures used in the book were made for commercial purposes, it is not to be thought that this work is of value only to the commercial or illustrative photographer. Every photograph, whether for pictorial or commercial use, must be planned and photographed to fully express the photographer's purpose in making it. This is what Mr. Kerlee's book so ably explains: the art of making a picture that will really express the idea or purpose you had in making it.

The U. S. Camera Annual 1940. Edited by T. J. Maloney. Published by Random House, Inc., of New York City. $2.95.

Commemorating the 100th year of photography, the publishers of this fine annual have presented a book that is worthy of this anniversary. It includes over three hundred pictures, in black and white and full color, selected from more than fifteen thousand entries by Edward Steichen. A new durable cloth binding and fine letterpress printing are two important mechanical improvements over previous years.

An excellent twenty-four page section is devoted to the work of Edward Weston. The photographs were selected from work done under Guggenheim Fellowships awarded to Mr. Weston during the past two years. Accompanying the pictures is an interesting description of the Westons' experiences and travels during this period.

Color Printing Simplified, by Thomas S. Curtis, Sc. D. Published by the Thomas S. Curtis Laboratories, Huntingtou Park, Calif. 64 pages, 5½x8 inches, illustrated, paper binding.

A detailed description of the technique of making color prints with Orthotone. It has been the author's purpose to provide an economical, simple method of making color prints for those who cannot afford expensive, elaborate equipment. This method seems to offer the ideal color printing method for the amateur photographer.

Pictorial Composition In Photography, by Arthur Hammond, F.R.P.S. Published by the American Photographic Pub. Co., of Boston, Mass. 203 pages, 7x10 inches, illustrated, cloth binding. $3.50.

The Third Edition of one of the most popular books on composition has been completely revised and enlarged. Included are 48 large plates of the work of the author and other eminent pictorialists. The prin-

ciples of composition and their practical application to photography are discussed in detail. In addition material is included on pictorial printing methods, toning and finishing and many important hints are offered to the salon worker.

The Photographic Process, by Julian Ellis Maek and Miles J. Martin. Published by the McGraw-Hill Book Co., Inc., of New York City. 586 pages, 7x9½ inches, many illustrations, cloth binding. $5.00.

A fine book, specifically designed as a college textbook, and written by two professors of the University of Wisconsin. Its scope and purpose are best described in the preface . . . "It is not intended to be either a handbook of practical methods or an exhaustive reference work. It is designed to give the reader an understanding of the photographic process sufficient to make his practice of photography an intelligent application of principles rather than a blind following of rules of thumb. It is concerned chiefly with the principles and basic techniques of the process . . . "

The book includes a series of experiments coordinated with the text and brief reviews of mathematics and chemistry that provide the knowledge necessary to an intelligent reading of the text.

Flash! Seeing The Unseen By Ultra-High Speed Photography, by Harold E. Edgerton and James R. Killian, Jr. Published by Hale, Cushman & Flint of Boston, Mass. 203 pages, 8x11 inches, many illustrations, cloth binding. $3.00.

1/1,000,000 of a second . . . ! It makes our everyday expressions of speed seem very inadequate. But that is the speed at which Dr. Edgerton makes some of his ultra-high speed photographs. This fascinating book describes the technique and shows a great many of the results of this interesting work.

The importance of Dr. Edgerton's work cannot be over-emphasized both from a scientific and an industrial standpoint. It may well be one of photography's most important applications.

The photographs reproduced in this book are amazing as well as informative and anyone, scientist, photographer or layman, will find them fascinating. Incidentally, if you play badminton, it also shows why the "birds" only last a few games.

The Universal Photo Almanac & Market Guide 1940. Published by the Falk Publishing Co., of New York City. 290 pages, 6 x 9 inches, illustrated, paper binding. $1.00.

The new edition of this increasingly popular annual offers the same pictures, articles, market guide and special sections as in previous years but in greater profusion as this is the largest volume yet published. Articles cover Synchro-Sunlight Photography, color photography, make-up for portraiture and many other subjects. The large up-to-date market section, the formulary, data section and the selected salon section all add up to a big $'s worth.

Pictorial Journalism, by Laura Vitray, John Mills, Jr., and Roscoe Ellard. Published by the McGraw-Hill Book Co., Inc., of New York City. 437 pages, 6x9 inches, many illustrations, cloth binding. $4.00.

This is much more than a book on news photography. Though news camera work is considered in detail, the book goes on to give details on picture editing, photoengraving, typography, picture layout, and page make-up. An ideal text for a class in journalism and required reading for photographers considering newspaper work.

Answers to What Is Your Photographic I. C.

1. False. The main point of interest should seldom be in the very center of the picture. There are many exceptions to the general rule, however. Religious subjects often have the principal object centered, for example.

2. False. A photographic bas-relief, while not common, is found in salons. Although the method of presentation is odd, this type of photograph, with good composition, will be hung by some salon juries. For the benefit of the tyro it should be mentioned that this picture is generally made by making a positive on glass, putting the positive and negative in contact, holding them slightly out of register, and making the print.

3. True. These instruments usually contain a stiff unglazed white paper on which a ring or spot is saturated with oil or paraffine. It is placed on the enlarger base below the projection lens with the negative in position. In the instrument behind the spot is a small electric light bulb who's brightness is adjusted by a rheostat. When the spot is least conspicuous in the projected light from any part of a given negative, a reading may be taken to determine the proper projection time.

4. False. Four feet of 16 mm. film (two feet, 8 mm.) has a projection time of about ten seconds on the screen. This is generally accepted as being an average scene length. Of course there are exceptions for both shorter and longer running times.

5. True. Kodachrome, Type A, is given a rating of Weston 8 when used with photofloods; a rating of Weston 12 for daylight use with a "daylight" filter.

6. False. A fixing bath that froths easily should be discarded. It is a sign of exhaustion and will ruin a good film.

7. True. Too much exposure will result in too rapid development with accompanying course grain; on the other hand, too short an exposure will give a thin negative which in turn will render poor print quality.

8. True. The sulphite is added as early as possible; it removes the dissolved oxygen from the water, and prevents oxidation of the developing agents which are added later.

9. True. The tilted camera's image is "correct" or "true." When a camera is not held level, buildings appear to be falling down or about to topple over. That this perspective is correct one can readily prove by glancing up the side of a tall building. However, we are so accustomed to the conventional perspective that any other appears "untrue."

10. False. In using a soft focus lens there is a varying quality of diffusion in different planes; particularly sharp at the point of focus and blending off into greater diffusion in the other planes. With a diffusion device there is equal diffusion throughout the photograph.

CLASSIFIED ADVERTISEMENTS

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Items advertised in these columns may be purchased C.O.D subject to examination and C.O.D. subject to ten days free trial if sent by express. If in doubt, safeguard yourself.

OUTFITS FOR SALE

◆Home made 4 for Dime camera, F3.5 lens in shutter, $25.00. 145 mm. F3.5 Berthiot Stellor lens in barrel, $19.50. 6 in. F7.7 Kodak Anastigmat in shutter, $5.00. Mission Studio, 310 K St., Sacramento, Calif.

◆4x5 Graflex R. B., $67.00; Press Graflex, Goerz lens, $75.00; 5x7 and 8x10 view cameras at special low price for quick sale, write for details. Arthur Brown, Melrose Highlands, Mass.

◆Rolleiflex F:3.5, Automatic. Practically new. Everready case, two Proxar lenses, two Duto soft focus lenses, four filters, sunshade and filter holder. For cash sale by owner, make offer. E. Adams, 170 Otis Street, San Francisco, Calif.

◆Ilex medium Wide angle F:16 focus 7½ in. general shutter, 1/100 to 1/5 sec. $12.50. J. H. Dallmeyer wide angle lens revolving stops, $5.00. 8x10 to 9x11, F:8, Rapid Rectilinear lens in barrel, one element needs recementing, $5.00. Want a 4x5 Speed Graphic with or without lens. Lester A. Smith, 7½ So. Wenatchee Ave., Wenatchee, Wash.

◆Rolleicord 3.5 camera, case, lenshade, Proxar lenses, 4 filters and Kalart Flash, $80.00. Omega B Enlarger, Wollensak 4.5 lens, $55.00. Richard Wagner, 111 Sutter St., San Francisco, Calif.

OUTFITS WANTED

◆Series B or D 3¼x4¼ Graflex in first class condition for cash. S. B. Risdon, Rte. 5, Box 105, Watsonville, Calif.

STUDIOS FOR SALE

◆Must sell at once on account of sickness. No other reason as studio grosses $250.00 a month and income could be increased if some hustling was done. County seat, mining payroll, and a radius of ten miles of surrounding country to draw from. Any fair offer accepted. M. J. Pierce, Jackson, Calif.

◆Ground floor studio, fully equipped. Splendid business year round, no crop failures here, must sell by February 15th. A real buy for a live wire photographer, priced unusually low. For particulars write P. J. Standar, 527 Park Ave., Idaho Falls, Idaho.

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Silly Soliloquies

As Soliloquized to James N. Doolittle

by Himself*

Names or similarity of names of persons, living or dead—physically or professionally—mentioned in this article, is either deliberate or merely circumstantial. Views expressed herein do not necessarily reflect those of the Editors and I'm not sure that I'll wholly endorse them myself by the time this occurs in print. Italics are mine but I shan't want them any more.
—J.D.

THE AIM OF THIS SALON is to exhibit only those photographs that bear distinct evidence of personal artistic feeling and execution. As preamble to a European salon announcement, it gave me, many years ago, my first chuckle about art and photography. The passage must have been a literary gem for it has been copied by nearly every salon organization down to the present day!

DISTINCT EVIDENCE to whom? Subtlety is usually an attribute to be hoped for in most works of art so "distinct evidence" would seem to imply obviousness.

PERSONAL ARTISTIC FEELING. Here's something to revolve in your mind! "Groping or fumbling about" is my snap-shot interpretation of the business of "feeling" as applied to half the art photos one sees these days but personal artistic pawing around is the reason more than two-thirds of the stuff we encounter on judging night is most appropriately labeled, NO COMMERCIAL VALUE!

AND EXECUTION—This tempts me to dally with a time-worn gag, but work it out for yourself.

SALON JUDGING is a lot of fun and not a bit "arduous" unless it is gone about the hard way. Let a committee assemble a group of folks who

*Who was the judge of exhibits at the 23rd Los Angeles International Salon.

"Let's Play Patty-Cake" *H. Cooper, Los Angeles*

23rd Los Angeles International Salon

have more or less knowledge of and sympathy with photography, turn them loose before a pile of a couple of thousand prints, with ballots or electrical devices and watch the ruckus! From such a gathering one can learn more art in the raw than from all the books or schools in the world!

LOS ANGELES INTERNATIONAL, the twenty-third, at the Los Angeles Museum and currently at the M. H. DeYoung Museum in San Francisco, has again wished the job of judging upon one man.

1635 PHOTOGRAPHS this year. Beginning at about seven-thirty in the evening, these were carefully looked over, selections made for hanging and the museum locked up and dark by eleven o'clock.

FAIR AND IMPARTIAL judging? Decidedly, with one person doing the work. What's the difference between a salon and a newspaper or magazine when it comes to the selection of material for the approval of a public? Imagine the situation in the offices of a picture magazine, for example, with a "gang jury" trying to make up its mind about the illustrations. It wouldn't work. Which is why they have editors.

IT DOESN'T TAKE LONG to spot a good picture. Looking at it for an hour doesn't make it any better and certainly one cannot talk stuff that

"The Road" *Jaroslav Bohacek, Czechoslovakia*

23rd Los Angeles International Salon

"Abandoned" *Walter C. Ross, Springfield, Mass.*

23rd Los Angeles International Salon

isn't there, into a print! Mediocre pictorial efforts are just as suddenly apparent and the ballot is only a clumsy way of doing a simple job.

IF I WERE IN A JAM with the law and knew I were due for the rap, I'd a whole lot rather take my chances with "twelve good men and true." Because there are several degrees of goodness and truth is elastic. But if I were wholly without guilt, I'd feel perfectly safe with "his honor." And I wouldn't want any attorneys heckling from the sidelines! Not a bit different with the judgment of pictures. I'll bet I could get some screwy, sensational, "modernistic" thing by a jury of three or more while it would not stand a Cathayan's opportunity of acceptance by an individual juror.

MODERNISM is an expression of something current—the language of "right now." If it's spelled "moderne" then it's putting on an act.

EXPERIMENTATION AND RESEARCH is the beginning of most of our knowledge and, in other fields, is kept within the precincts of the classroom or laboratory. Artists send their exercises to exhibitions and call them "projects," "abstractions" and what not.

LADIES ART GROUPS—usually the talkers about but not the doers of Art—get into a rave about this latter class of autography, sponsor some individualist(!) with a message, and a "movement" is on! Just happened to realize that, quickly, I cannot think of any lady artists except Rosa Bonheur and Marge. I like them both from opposite ends of the spectrum and to the same degree!

"Man From Mars" *Charlie Potts, Monrovia, Calif.*

23rd Los Angeles International Salon

ARCHITECTURE is one of the nobler arts. Wonder why so many photographers find something in the humbler forms. Like barns—tumbled down barns especially. I'd think a nice, bright, shiny barn would make a better picture. And fences. Personally, I never cared for them but if I *had* to photograph one, I believe I'd pick out a fence that at least looked as though it could still fulfill its intended function.

PATTERN SHOTS are those that usually we can't find another name for. "Arrangements," some call them. Just to be doing something, is thought sufficient excuse for photographing a more or less geometric set-up of odds and ends. The stuff does get into shows, though, which proves something or other.

SHARP PHOTOGRAHY, thank goodness, is back with us again. It has been on the way to a return engagement for some time. I remember not so long ago that a print made on just commercial printing paper was only for newspapers. I knew many a photographer whose only lens was a soft-focus affair and the owners of anastigmats usually operated them behind some device for the suppression or total extinction of detail. Then, to make matters worse—or maybe better—printing was done by the gum-bichromate process. Bromoils were capable, too, of obliterating "meaningless detail." Shows are still exhibiting plenty of meaningless detail for there's a growing feeling that if it's sharp, it's good.

COMPOSITION is one of the elements of a picture which we'll concede ought to conform to a more or less certain set of rules but I've never gotten very far with the idea that because a photograph was perfectly composed and sharp that it need necessarily be called a picture. By the way, I wonder what ever happened to the F:64 Group. Guess they must have run out of twisted trees and cactusses. (All right, cacti, if you want to be that way about it.)

SPEAKING OF TREES I'll go all the way with the poet who sang their praises with full credits to the Diety. Lovely, too, are many of His other creations. But things wither and perish. It takes a photographer to think up a reason for making pictures of the skeletal remains of arboreal life. And it takes a lot of thinking on our part to try to figure out why he does it! I like my trees "on the hoof," so to speak, and I don't think it helps a bit to drape a lady about the roots even as an excuse to title the picture, "Dryad."

AND NUDES! Believe I'd better not get started on this subject for I'm afraid I'm wrong about the whole matter. Quickly I venture the thought that most of the things I've seen, got through the mails simply because they're consigned to an Art Gallery. Found carrying some of them around in one's wallet would certainly cause people to talk! In the transmutation of man's rib into the feminine of the species, nature has accomplished many creditable examples. But since certain instincts of modesty causes woman to seek attractive raiment, which has nothing to do with keeping out the cold, we occasionally suffer a mite of surprise to learn that nature has had its lapses and lovely woman has been holding out on us! Maybe it just happens that I've seen all the "horrible examples" and yet have a treat coming. Forman Hanna makes about the closest ap-

Brett Weston Photographer

F. H. Halliday

THERE are plenty of disadvantages in being the son of a famous father. especially if you choose to work in the same medium. If your work be inferior, regardless of difference in age and experience, the public will put it down as a weak imitation. If your work excel, then all credit to the wise and helpful parent who inspired you. Brett Weston has had his share of this kind of junior-trouble, but in spite of it he has risen to a top-ranking place among present-day American photographers.

Brett was born in Los Angeles in 1911, the second of Edward Weston's four sons. His curiosity concerning matters photographic was first memorably demonstrated when he was about four. Their father had taken Brett and his brother Chandler, two years older, to a favorite eucalyptus grove on a hilltop back of his studio to make an outdoor portrait of them. After a hot climb up the steep hill he let the boys rest while he set up his 5x7 view camera and got the eucalyptus background properly focussed. When he emerged from the focussing cloth to summon his models a dreadful spectacle smote his gaze. The two boys were seated on the ground with the open case between them, in the act of drawing the last of the slides from the plate holders. Brett explained earnestly that they had only wanted "to see what those things looked like inside." Certainly it is a tribute to their father's disposition that both boys managed to survive the consequences of that youthful experiment.

In the next few years Brett's photographic activities were less sensa-

"Kindling—1925"

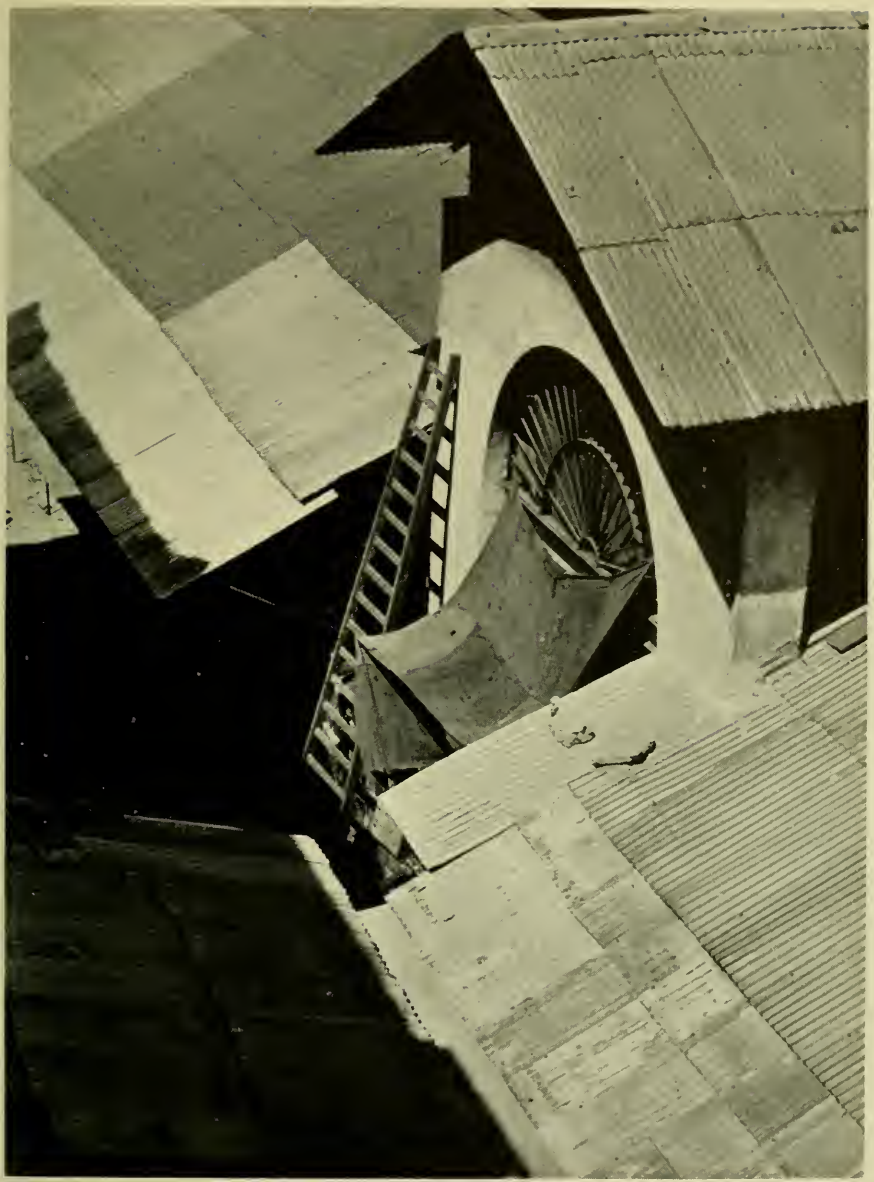
Brett Weston

tional; they consisted mainly of cranking his father's big studio camera up and down, or climbing up to squint at the ground glass and try to focus. These maneuvers were gradually replaced by the more glamorous occupation of collecting butterflies and bugs, and when his father took him to Mexico in 1925, Brett was apparently headed for an entomological future.

Brett was sent to a Mexican private school and that didn't work out very well. He was fourteen then, big for his age, with a pair of ingenuous blue eyes and a wild mop of curly blond hair. The Mexican boys were smaller but older, and a good deal more sophisticated. So they ganged up on the big blond gringo and gave him the works as only children can. One day Brett came home with all of his books and a firm set jaw; he had an understanding father, and no more was said on the subject of Mexican schooling.

The streets of Mexico City didn't provide a very suitable environment for butterfly-catching, and keeping an energetic fourteen-year-old occupied became something of a problem. There was only one convenient answer: Brett was introduced to the mysteries of darkroom procedure and the workings of his father's 3¼x4¼ Graflex.

Whatever handicaps Brett may have drawn from being his father's son are more than balanced by the benefits derived from a sound early training. From the outset his instruction was limited to the technical



"Market Place, Mexico—1925" *Brett Weston*

"Bay Windows, San Francisco—1928"
Brett Weston

aspects of the medium—camera mechanics, exposure hints, development of films. When Brett brought a finished print for comment, criticism was made on the same basis; technical failures were pointed out and condemned, in the same spirit harsh words were meted out for a dirty graduate left in the darkroom, but in the realms of subject matter and composition he was left to find his own way without advice or suggestion. Such a complete lack of artistic direction might have led to endless experimenting and careless snap-shooting if it had not been for the Weston economic situation: its acuteness left no margin for reckless waste and Brett was put on severely restricted rations of film and paper.

One has only to consider the aimless gropings of most beginners to understand the value of this initiation. Limited materials forced the boy to work carefully. Insistence on good technical work at the outset made it impossible for him ever to fall into the common error of considering technical excellence an end in itself. Absence of all art-dogma, rules of composition, etc., left him free to use his own imagination in selecting and presenting his subjects.

During that Mexican period his father was filling the hours between infrequent sittings by making a series of photographs of *juguetes*, the fanciful toys of the Mexican Indian. Weston must have enjoyed himself as he made these pictures for they are full of humor, fantasy, and charming satire. The house overflowed with *juguetes* and new treasures were con-

"Sewer Pipes—1927" *Brett Weston*

"Sand Dune, Oceano—1936" *Brett Weston*

stantly being added to the collection, but Brett never photographed one. Perhaps, with a youthful urge to make his own discoveries, he deliberately looked for subjects his father hadn't done. Most of those early photographs are of simple things he found around the house—a stack of kindling, a chimney pot, a pile of Mexican biscuits, a potted plant. They are presented with refreshing directness and candor. There is no self-conscious attempt to make the subject matter heroic or beautiful—kindling is kindling, biscuits are biscuits—but they have been lovingly seen and carefully recorded. Brett tackled more difficult subject matter in several photographs made from a roof-top looking down on a market. They show a good sense of composition and feeling for photographic values. As the work of a fourteen-year-old, they are astonishing. One of this series, an interesting pattern of the tin roofs, was acquired by the King Albert Museum in Zwickau, Germany.

By the time the Westons returned to California at the end of 1926 photography was on the upgrade in Brett's scheme of things, so when the annual salon was hung at the Los Angeles Museum, Brett's father took him along to view it. This was the first time Brett had ever seen typical salon prints. He hadn't been warned about what was coming. As they started down the first row of sepias, red chalks, rough "art" paper, fuzzy

"Airplane—1936" *Brett Weston*

landscapes with blurry sheep, winsome nudes with hoops and bubbles, his father carefully refrained from comment, hoping to get a completely spontaneous reaction. He did. Brett thought the pictures were funny; but evidently not funny enough for he soon wandered away to inspect the butterflies and bones.

When Brett was sixteen his butterfly passion began to wane, a new interest appearing to replace it. The normal boys' activity of whittling which he had carried on ever since he could be trusted with a pocket knife suddenly blossomed into a serious effort at wood carving. This new interest was to have a direct influence on his photography, affecting both his choice of subject matter and way of presenting it. Two pictures made when he was about sixteen—the train detail and the sewer pipes—show a new preoccupation with pattern, a stressing of composition at the expense of subject matter, that is not to be found in the earlier Mexican photographs.

In 1928 Edward Weston had a portrait studio in San Francisco. Brett was with him, devoting all his spare time to photography. Whenever an excuse could be found Brett would borrow the car and the Graflex and be off to scour the city for subject matter. Again, notice the change from the Mexican approach: then, his daily surroundings provided ample material; now, he hunts through the city for the *right* subjects. When he photo-

"Golden Gate Bridge—1939" *Brett Weston*

graphs the bulging bay windows so characteristic of that metropolis, he no longer sees through the small boy eyes that made the most of a Mexican market as such; instead he looks past the surface appearance of the buildings and discovers a basic sequence of beautiful interlocking curves.

City life had little appeal for either junior or senior Weston, and when a chance came to move to Carmel the following year, the San Francisco studio was abandoned without regret. This new move was an important one for both Westons. For Edward Weston it marked the beginning of one of his most productive periods: the famous vegetable series was made there, and the important collection of fragment nudes. In Carmel Brett got his first camera, a 4x5 Graflex; there he made his first portraits (non-professional), and gave his first one-man show.

The sharpest focus during those Carmel years, for father as well as son, was on that unique headland that thrusts into the Pacific a few miles south of Carmel—Point Lobos. There for the first time Brett used the same subject matter his father did; often they photographed the identical details of rocks or cypress. (Brett usually "discovered" these first by starting off at a run with his smaller camera while his father was engaged in setting up his 8x10.) In comparing these photographs it is interesting to see how the great disparity in viewpoints has transformed a single, simple object. Edward Weston always manages to include a full-length portrait

"San Francisco—1939" *Brett Weston*

in his close-ups of this period: a fragment of a cypress root becomes a biography of the whole tree, black pebbles on the beach are records of the sea that shaped them. Brett's treatment of the same subjects takes the opposite direction. However little he starts with, he simplifies it still further: rocks and roots are broken down into their basic structures and patterns, and all connotations of subject matter are made subservient to a dominant form.

Here again the influence of Brett's carving becomes apparent. Some of his first carvings were sculptured forms simplified from parts of his own photographs. Now, more and more, he seems to be trying to achieve the simplicity and solidity of the sculptured object in the photograph itself. Perhaps there was no conscious intention of this sort, but the relationship between Brett's carving and photography is implicit in the finished work. For the next several years the sleek, sinuous forms that characterize the carvings come more and more to dominate the photographs.

By 1932 Brett had opened a portrait studio in Santa Barbara. Near at hand he discovered made-to-order material in the dramatic black and white patterns of the Oceano dunes. With his first 8x10 camera Brett tramped over the mountains of wind-sculptured sand, photographing exultantly. Usually he worked in the early morning or late afternoon when he could get the sharpest contrast of deep black shadows against the white

glare of rippled sand. In these photographs the blacks are no longer just shadows; they have been transformed into substantial bodies that seem to rest on the surface of the sand. Many of the pictures consist entirely of large masses of black and white with no detail and almost no perspective, but they are saved from becoming pure pattern by the roundness and solidity of the forms. Again Brett made carvings from forms in the photographs—and once he photographed a detail of one of those carvings. Many of the photographs might very well be enlarged sections of a carving. This then, was the ultimate goal. Carving and photography could approach no closer to each other, and the quest for pure form in photography could be carried no farther without transcending the bounds of the medium.

It is only in retrospect that an artist discovers the A B C of an orderly progression in his work. He can never be conscious of the time of passing from one period to the next because these periods overlap and mix as each is born out of the other. While Brett was concentrating on these simplified dune forms he was also beginning to make open landscapes—wide stretches of sand hills under dramatic skies. The dunes still have the look of a carved solid, their solidity sometimes emphasized by the delicacy of flame-like clouds above them, but these pictures are the beginning of a new outlook, the overlap of a new period. Further evidence of the changing viewpoint shows in a new regard for detail; as in the picture of the airplane it is often used in juxtaposition with large masses of black and white.

After working two years as supervisor of the photographic division of the Federal Art Project in Los Angeles, Brett returned to portraiture in 1937 and established a studio in San Francisco. Ten years before, in the same city, he had searched for beautiful form and recorded the fat curves of bay windows with his father's Graflex. Now, with a bigger camera and a broader vision, he set to work photographing the city itself.

Most of these new pictures are long range views that dwarf the city in its own setting. The buildings become fragile little cracker-boxes set out in tidy rows between the clean line of the hills and the sweeping wash of the bay. The landscape presses in upon the city with mountains and invades its streets with trees. The vast cloud forms that dominate the diminutive buildings seem to be sculptured from more solid substance than the landscape below them.

The knowledge of form and mass acquired in the dune period serves Brett well in this new work. Without a sure sense of proportion behind them many of these city scenes would have been hopelessly confused and chaotic. But the complexity of detail has been handled in masterly fashion. Lamp-posts, wires, cars, blocks of buildings and ribbon cuts of streets are reduced to a structure of basic order in which the most complicated intricacies of city network become at once comprehensible and fascinating. Like an air view of a maze that shows you the secret center but invites you to trace the route thither, these pictures invite you past the stage of simple observation, to a detailed tour of inspection that is richly rewarding.

While this new series is still unfolding it is impossible to predict its ultimate form, but from the small group of prints already made it is safe to say not only that Brett is doing the most important work he has yet undertaken, but that he is producing a portrait of San Francisco that knows no equal in photography or any other medium.

Gamma, Exposure And Development

Paul Louis Hexter, A. R. P. S.

IN MY last article* I stated that negative making should begin with the determination of gamma** and then exposure should be keyed in, rather than the present practice of determining exposure in some way and guessing at gamma in the darkroom. We are after a precise control of all the factors that influence the quality of the negative.

To work in this manner the following are required:

(1) A Weston Exposure Meter.

(2) Details on which Weston Speed Ratings are based.

(3) Time-Gamma Information for the film stock used.

Weston ratings classify films according to their use. They are based on specific gammas with the manufacturer's recommended developer.

BASIS OF WESTON SPEED RATINGS

TYPE OF FILM	GAMMA
Aero	1.2
Press	1.2
Commercial	1.
Amateur & Roll	1.
Portrait	.9
Miniature	.8
Process	3.0

Weston ratings are based on practical usage, not on laboratory exposure to standard wedges and laboratory developers. Herein lies the superiority of the Weston system over the other methods of rating films. As practical photographers we are interested in exposure ratings based on field conditions, not in theoretical comparisons.

A film like Eastman Panatomic X Cut Film is considered by Weston a commercial film and the speed rating assigned to it is based on development to gamma of 1., as is usual practice in commercial work. A film like Super Ortho Press is given its speed rating based on development to gamma

*Camera Craft, February 1940.

**The meaning of Gamma is fully explained in the previous article.

1.2 as is usual in press work. In using Weston ratings, it is at all times essential to keep the above table in mind. The type of developer and the amount of development have a profound influence on the effective speed of any film. If a film has been assigned a Weston rating based on development to gamma 1.2, its practical speed rating will change if development is only carried to gamma .8. For accurate control of all the factors influencing a negative, we should train ourselves to think of Weston Ratings coupled with the specific gammas on which the ratings have been based.

For some strange reason most photographers are not content with the manufacturers' recommended developer. They try every new formula that comes along hoping to find some magical combination which will cause their pictures to turn out as masterpieces. Now all developers develop films and strangely enough the masters of photography can use any of them. The secret is not in one particular developing combination, it is in knowing how to synchronize the developer with film stock, exposure, lighting and time of immersion.

Here is a table showing how different developer combinations affect Panatomic X:

DEVELOPER		GAMMA									
		.7	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
DK-50	Time in Minutes	5	5½	6¼	7½	8¾	10	11½	13		
DK-76	" " "	12½	15	18	22½	28					
DK-20	" " "	17½	21	25							
DK-60A	" " "	4	4½	5	5½	6¼	7½	8¼	9	12	14

Tank Development at 65°—Agitation every 2 minutes

This table shows three things:

1. Wide differences in gamma are obtained on the same film with different developer combinations. Maximum gammas in this case are:
   DK-50 Gamma 1.4
   DK-76 Gamma 1.1
   DK-20 Gamma .9
   DK-60A Gamma 1.6
2. For the same value of gamma, different developer combinations require widely different immersion times. In this case for a gamma of .9:
   DK-60A requires 5 minutes
   DK-50 " 6¼ "
   DK-76 " 18 "
   DK-20 " 25 "
3. In certain cases the value of gamma on which the Weston Speed rating is assigned, may not even be reached with some developers. In this case the DK-20 will not give a gamma of 1. which was the basis of a Weston Daylight Rating of 24.

The arbitrary use of a Weston rating with Uncle Ezra's pet developer and a haphazard guess at the length of development time is obviously not the way to get fine negatives, yet that is the way most photographers work.

Mortensen uses a metol-borax developer. He is one of the world's outstanding photographers. Thousands of photographers have tried metol-borax hoping to find in it, the secret of Mortensen's wonderful work.

"Masses" *Paul Louis Hexter, A.R.P.S.*

Charles Kerlee uses a pyro-acetone combination, not too widely known. Since his recent book was published, thousands will try pyro-acetone.

The developers that present day masters of photography use, hold a peculiar fascination for almost all workers. The actual fact is exactly this: Just as DK-50, DK-76, DK-20 and DK-60A have a certain immersion time to reach the same gamma, so do metol-borax, pyro-acetone, and D-1 pyro. At a gamma of .9, negatives developed in all these developers will be substantially the same. Some may have a finer grain and pyro negatives will be different in color. However, the ratio of tone separation will be identical. It is not the composition of the developer that counts, it is knowing how to synchronize all the factors that influence the quality of the negatives, that is the important thing.

Negatives are the result of lighting, exposure, film stock, developer combination, and time of immersion. All these things are interdependent and interrelated. A change in one affects all the others. The masters of photography will produce their excellent works with any developer as long as it will bring out tones on the negative. They know how to correlate all factors that influence a negative. That is their secret—not the developing formula.

Synchronizing all the factors that make a negative is not as difficult as it first may seem to be, provided one has a Weston Meter, Weston film ratings, and a time-gamma table for the film stock used. In the article on "Perfection in Technique" in February, Camera Craft, I pointed out that gamma can be used as the factor to control the separation of tone ratios, *before the negative is made.*

With Panatomic X the Weston rating is 24 when developed to a gamma of unity. A gamma of unity is not always wanted, however. A dull flat scene will require the tone ratios separated more than in the subject, probably to gamma 1.2 or 1.3. A contrasty scene will require the tone ratios contracted, to gamma .8 or .7. This is determined at the time of making the negative.

If all exposures were to be with the Weston rating at 24, and different gammas used, with a gamma of 1.2 or 1.3 the negative will be too heavy. With a gamma of .7 or .8 it will be too thin. Hurter and Driffield showed that exposure controls only the density of the negative and development controls only the tone ratios. Therefore, if the negative at gamma 1.3 is too dense, less exposure will prevent this. Similarly if the negative at gamma .7 or .8 is thin, more exposure will prevent that.

Fortunately there exists a definite correlation between gamma and the Weston scale. It will be found that a change of .1 in gamma can be compensated by a change of one step in the Weston scale. The following table shows this worked out for Panatomic X:

GAMMA		WESTON RATING
.7		12
.8		16
.9		20
1.0	Base of Weston Rating	24
1.1		32
1.2		40
1.3		50

"Lyun" *Paul Louis Hexter, A.R.P.S.*

Thus if Panatomic X is to be developed to gamma .8 a decrease of .2 gamma from the base, a Weston rating of 16 is used, instead of 24. The Weston rating is moved down two steps. If it is developed to 1.2 an increase of .2 gamma above the base, a Weston rating of 40 is used. The Weston rating moves up two steps.

The question immediately arises, "Will not under-exposure result if Panatomic X is exposed at Weston 40 instead of 24?" The answer is a

gamma of 1.2 would not be required unless the subject was of low contrast and in that case there would not be under-exposure. Of course, if a normal contrast scene were exposed this way there would be some under-exposure.

Synchronizing all the factors which influence negative quality in this manner gives the photographer absolute control of his medium so that he can photograph any scene without trepidation or fear as to the results.

The procedure is:

(1) Observation determines whether the tone ratios of the subject are to be expanded, contracted, or left as they are. In other words value of gamma is determined before exposure is made. This keys the amount of development to the lighting of the subject. A high gamma will be selected for a flat subject. A low gamma will be chosen for a contrasty subject. A gamma of unity will be selected for a normal subject. This is the usual procedure. Obviously there is a vast opportunity here for personal interpretation.

(2) The exposure is read from a Weston meter, with the speed rating of the film adjusted to the gamma selected. This keys exposure lighting and film stock.

(3) Development is carried out in the manufacturer's recommended developer to the selected gamma according to time-gamma tables for that particular film. The manufacturer's developer is used because:

(a) The Weston rating was originally based on it.

(b) An accurate time-gamma table for some other developer is almost impossible to get.

This synchronizes all the factors which influence a negative namely: lighting, exposure, film stock, developer combination and amount of development.

The camera is a marvelous mechanical instrument for recording tone values. It can be used as a means of artistic expression if control is exercised over the way in which these tone values are recorded. The illustration "Masses" is a good example.

This scene was a concrete bridge in brilliant sunlight, the light coming from a 40° angle at one side, casting pronounced deep shadows. This scene had heavy contrasts. To achieve normal rendering the negative should have been developed to a gamma of .7. If Panatomic X were used this would have meant exposing with a Weston rating of 12 and developing in DK-50, if that developer were selected, for 5 minutes at 65° F.

It was decided not to work for normal rendering but to work for mass design. The scene already had strong contrasts. These contrasts were separated still further by selecting a gamma of 1.3 and exposing with a Weston speed of 50 instead of 24. Development was in DK-50 for 11½ minutes at 65°. As would be expected the shadows have come out as absolute blacks. In the upper right hand corner is a portion of blue sky. This was brought in black by using a red filter. No control or shading was necessary in printing. There is no guess work in working in this manner.

In the outdoor portrait "Lynn," the illumination was brilliant sunlight. The shadows were full of light but the subject appeared slightly contrasty. A gamma of .9 was selected to reduce the contrasts and, of course,

"Steel's Castle" *Paul Louis Hexter, A.R.P.S.*

the exposure and development were synchronized in the manner outlined.

In the picture "Steel's Castle" the black building against the light sky in early morning sunlight gave average contrast. It was desirable to render the building darker than it actually appeared. In this case a gamma of 1.1 was selected and exposure and development synchronized. The procedure in the field is very simple but it means recording the gamma selected for each negative.

These articles have given an outline of how to achieve a technique which is at all times responsive to the way in which the photographer desires his picture. My book, "Make Your Pictures Sing,"* treats the subject far more extensively. Time-gamma tables and developers are given for all films. The reasons for all steps are thoroughly explained. The selection of film stock is covered. There are also chapters on lenses, lighting, enlargers, and printing, all written from the practical standpoint with experiments so that anyone can build up a step by step picture of perfect technique in a very short time. It is my hope that this book will enable many photographers to concentrate far more on their pictures and far less on mechanics, for once perfectly controlled technique is achieved, good pictures become much, much easier.

*Camera Craft Pub. Co., $3.00, Ready April, 1940.

Filters Made Easy

H. C. Benedict, Ph. D.

Prologue

"Considering how many fools can photograph it is surprising that it should be thought either a difficult or tedious task for any other fool to learn how to master the same tricks.

"Some photographic tricks are quite easy. Some are enormously difficult. The fools who write the articles and text books of advanced photography—and they are mostly clever fools—seldom take the trouble to show you how easy the easy calculations are. On the contrary, they seem to desire to impress you with their tremendous cleverness by going out of their way to do it the most difficult way. (They omit all calculations and thought from the process.)

*"Being myself a remarkably stupid fellow, I have had to unteach myself the difficulties (that is the unsupported dogmatic statements) and now beg to present to my fellow fools the parts that are not hard. Master these thoroughly and the rest will follow."**

THERE—now I've gone and done it. I have profaned the sacred science of photography by suggesting that it is easy. Amateurs galore have been told so frequently that it is hard and unnecessary that they flinch at the very words and turn away. Hear me out and then make up your mind.

Why vs. Do

Many recent writers on photographic subjects have delighted in "panning" the scientific approach. They seem to feel that by doing this they are making it simpler for those who read and run. While this is undoubtedly true, an excellent brief can be made for the knowledge of some of the simpler scientific aspects of a particular problem. It is perfectly possible, for example, to have a person entirely untrained in chemistry perform repeatedly day in and day out, some routine chemical operation; but if something goes wrong, or if there is the slightest variation required in the procedure, then this pseudo-chemist is lost. Similarly, it is perfectly possible to train somebody in an exact procedure of development of photographic emulsions, and to have him successful so long as all the

*Paraphrased from the prologue in the delightful book on The Calculus by Silvanus P. Thompson to whom apologies and thanks are due.

factors are constant. However, if there is some new variation in film or developer, or even in the type of negative required, he must work out a whole new technique. This is feasible in a simple, more or less, mechanical operation like development. But when pictures are taken out-of-doors where a tremendous number of independent variables can enter in, the routine type of procedure is much less apt to succeed. It all boils down to whether it is easier to do what you're doing because you're taught to do it that way, or to do it because you know *why* it should be done.

It is no more plausible to suppose that a photographer should have no knowledge outside of the immediate procedure than it is to suppose that a nurse should have no knowledge of bacteriology, chemistry and anatomy, merely because she does not apply it directly. All of these subjects, somewhat removed from the actual practice of nursing, go into the making of a better nurse. A farmer who has learned more than enough to merely fulfill the day by day requirements, has a much better chance of prompt success than the man who just picked up farming by the trial and error method, as so many try to pick up photography.

There are several reasons why we hear that none of the "whys" of photography are necessary. One may be that the writer is attempting to appeal to the masses by making it appear too simple. Or possibly other writers believe that the "whys" will be confusing to the beginner, and although this is true to a certain extent, as the "whys" are somewhat scientific, "scientific" is not necessarily synonymous with "difficult." It is possible to present the elements of the "whys" so as to be intelligible to anyone of good common sense. Another reason may be that the writer does not know any of the "whys," and being successful, feels they are unnecessary, because he overlooks his long years of unconscious experimentation, of learning by mistakes, with its consequent waste of time and materials. It is true that a knowledge of the "why" is not necessary if one is willing to make a separate problem out of each new aspect that presents itself and take the time to solve it individually, but with some knowledge of the "why," one can go much more directly to the point by predicting with reasonable certainty, the outcome of some new variation in procedure. The deficiency in this attempt at too great simplification is that the work is actually less interesting, too dogmatic and mechanical. This is a question of the relative fun of doing and of thinking, either together or separately. Many people, thinking too little, overlook how much fun there actually can be in thinking. The ancient philosopher of several thousand years ago, concentrated on thinking and believed it beneath himself to actually perform any experiments, which resulted in a great many wild beliefs, which could have been easily disproved by doing something. Of course the philosophers had fun. The ditch digger, whom colleges are said in some instances to spoil, does not have to think, he gets a lot done, but has little enjoyment in it. When we try a combination of doing and thinking, we have a lot of fun and we get a great deal accomplished. Scientists, doctors, nurses, painters and almost certainly, the top-notch photographers do not merely muddle through when confronted with some new problem, but they have a background, *they have a fund of knowledge which will be greater than they expect to be called upon to use, and because of this, when the unexpected turns up they know what to do and do it.*

A long list, covering the possible conditions under which photographic filters* could be used, would be a substitute for thought. It would have a little system but thumbing through it to try to find the right filter to use to produce a certain effect would be tedious, to say the least, and to memorize it would be even more laborious. The fact which this list overlooks is that it may not cover the unexpected condition and it will not prepare the photographer to develop new and original effects of his own.

A basic knowledge of the principles behind the use of filters will enable one to choose more or less unerringly, and without reference to a list, physical or memorized, the appropriate filters for the particular conditions and, furthermore, it will allow him to use what originality he may have in producing something which may be his own. Now the basic principles behind the use of filters are comparatively simple if given a little thought and if broken up into parts, so we shall end this paragraph with the ancient simian proverb, that "*What one fool can do, another can.*"

Visual Perception of Color

The primary objective of the use of filters in photography is to produce in monochrome, as closely as possible, the colors as they are seen by the eye. A secondary aspect of this is to distort this monochrome rendering for some particular effect. In order to simplify the problem, it is customary to divide the visible spectrum into three parts, the blue, the green and the red. This follows from the Young-Helmholtz theory of trichromatic vision, which states that there are only three elements in the eye, sensitive to blue-violet, green and red. These are thoroughly mixed together and when equally stimulated the brain interprets the result as white light. On either side of the visible spectrum are two bands of so-called invisible light, both of which, may under special conditions, affect a photographic emulsion. Next to the blue, we have the ultra-violet, whose most well-known property is its power to produce sunburn, and on the other side of the red we have the invisible infra-red, which produces the effect we know as heat. If the ultra-violet and the infra-red are invisible to the eye and yet may affect a photographic emulsion, the obvious conclusion is that, when a correct monochrome rendering of the visible colors is required, these invisible rays must not be allowed to reach the photographic film. The actual sensitivity of the eye to different colors is shown in Figure 1. Notice that the ultra-violet does not affect the eye and that the blue which is closest to the ultra-violet, does only slightly. But passing through the shades of blue toward the green, the sensitivity of the eye materially increases and reaches its maximum approximately in the middle of the green.** Continuing from the green toward the red we notice that the impression of brightness to the eye continually diminishes until, at the point where the red blends into the infra-red, the visibility is negligible. Now, if we superimpose on this plot of eye sensitivity, the sensitivity of an

*A photographic filter is a colored piece of plane glass or gelatin which is placed over the lens of the camera in order to alter the tonal qualities in the final print.

**This maximum sensitivity of the eye for green explains "why" the safe lights which are used by panchromatic emulsion are a dark green. The beginner frequently believes that this is because the film itself has less sensitivity to the green. Actually it is because we can use an extremely weak light and still have it produce the color to which the eye is most sensitive. This is usually referred to as the Purkinje effect, that at low intensity of illumination, the visibility tends to be sensitive toward the blue-green.

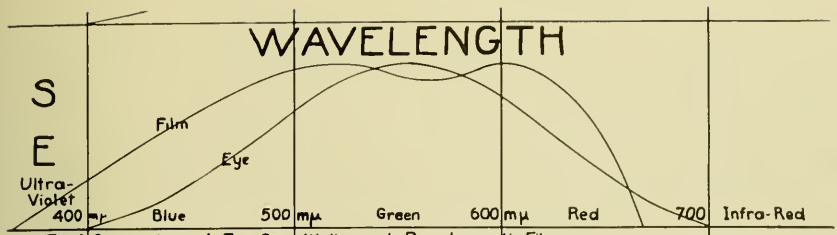


Fig. 1 Comparison of Eye Sensitivity and Panchromatic Film

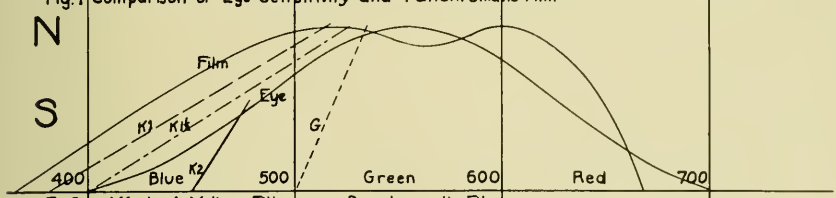


Fig. 2 Affect of Yellow Filters on Panchromatic Film

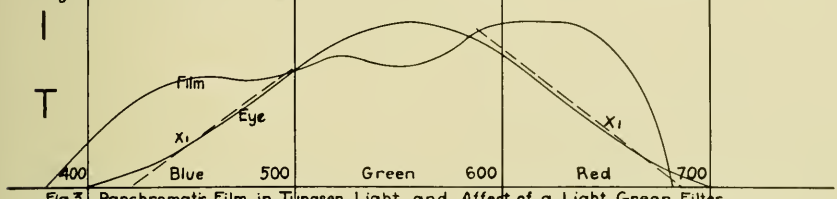


Fig. 3 Panchromatic Film in Tungsen Light and Affect of a Light Green Filter.

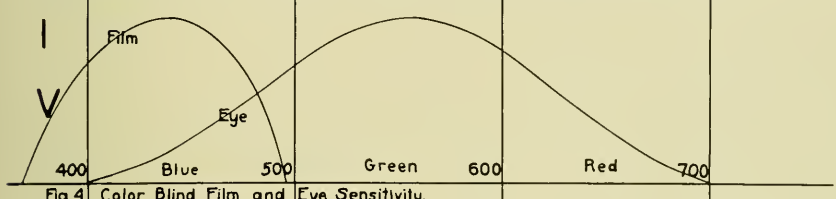


Fig. 4 Color Blind Film and Eye Sensitivity.

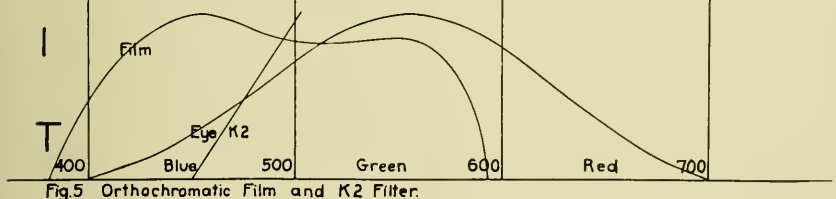


Fig. 5 Orthochromatic Film and K2 Filter.

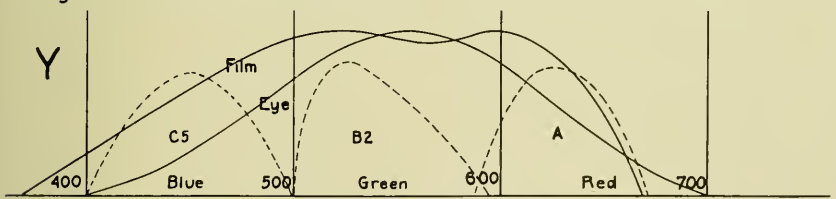


Fig. 6 The Blue, Green and Red Cuts of Tricolor Filters

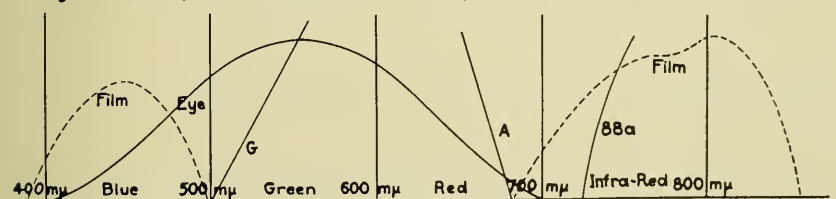


Fig. 7. Infra-red Sensitivity and the use of Several Filters.

ordinary panchromatic emulsion. (Eastman Kodak Co. refers to these as ortho-panchromatic or Type B.) we notice that on the red side the sensitivity of the film and of the eye are essentially equal and that there is no sensitivity to the infra-red. Green and red objects photographed on this type of film will produce a gray of the same visual intensity as the eye sees the colors. However, on the blue side of the green, the sensitivity of the film to blue far exceeds that of the eye, and there is a marked sensitivity of the film to the ultra-violet, which the eye has not. This results in all blues photographing much too light because blue produces too great an effect on the film. To produce a correct monochrome rendering, it is necessary to remove from the light that strikes the film, all of the ultra-violet and a portion of the blue.

Before we can adequately understand the solution of this problem it will be helpful to consider some concepts of color which are different from those held by the person used to thinking of color entirely in terms of pigments. We can conceive of white light as consisting of three main colors, blue, green and red.* and this conception is proved to be valid by projecting three beams of *light*, colored blue, green and red, on to a screen, when the visible impression of this mixture is white. The hard part to believe, until it is substantiated by experiment, is, that if we turn off the blue beam of light, in other words, have green and red lights on the screen simultaneously, the visual impression is yellow. As this is true we can now *define yellow as an absence of blue.* On the basis of this definition, a yellow object will reflect the red and the green light and will not reflect the blue light, but will absorb it, and a piece of yellow glass or yellow dyed gelatin is yellow because it transmits the green and the red and does not transmit the blue but absorbs it. That this definition of yellow is, strictly speaking, the only correct one is shown by the fact that if a yellow object were to be viewed in a pure blue light, it would look black. A simple way to test this is to observe a yellow object in the light of a mercury arc, or possibly a blue "neon" sign. As the yellow object has quite certainly not changed in character simply by being placed in a blue light, the fact that it looks dark should not alter our definition of color, but this appearance of black conforms to the definition which was given above, and therefore, fulfills all of the situations in which this yellow object may be placed. In a similar fashion we can define green as merely an absence of both blue and red, because certainly if both blue and red projectors were turned off, the visual impression on the screen is green, so that a green object, whether opaque or transparent, is green because it absorbs the blue and red light. The various shades of yellow and green and, for that matter, of all other colors, depends on the extent to which certain colors are removed or absorbed.**

For example, a very light yellow object absorbs a small portion of the blue, whereas a deep yellow object absorbs nearly all of the blue, and an

*As the wave lengths of light are very small, they are measured in small units. One of the units is the millimicron, mu, which means 1/1000 of 1/1000 of a millimeter or one millionth of a millimeter. There are 25 millimeters in an inch. The blue extends from about 400 to 500 millimicrons, green from 500 to 600 and red, from 600 to 700.

**Young and Helmholtz have an equation for the visual colors. $C = aR + a'G + a''B$ where C is the visual impression of the color and the a's are the degrees to which the elements of the eye are stimulated by red, green and blue light.

orange object, all of the blue and some of the green. And that's all there is to "Selective Spectral Absorption and Reflection."

Use of Yellow Filters

With this background we can begin to appreciate the usefulness of certain yellow filters and the places occupied by filters of various shades of yellow. There are three, and possibly four, yellow filters of use to the average photographer, differing primarily in the depth of yellow, which by our new definition, we re-interpret as differing by the amount of blue which is absorbed. For instance,* a K-1 filter is a pale yellow and removes essentially all of the ultra-violet and a small portion of the blue. The Kodak Color Filter is a K-1½ and removes a little more of the blue. The K-2 filter removes enough of the blue so that the effect on an ordinary panchromatic film is essentially the same as the visual effect. This can be visualized by referring to Figure 2, which indicates, approximately correctly, the places at which four yellow filters cut out the blue and the ultra-violet. The K-1 can be seen to produce a slight effect on the film without materially reducing the amount of light which strikes the film. The consequence of this is that only a small increase in exposure is required. The K-2 filter, by removing practically all of the blue light in excess of that to which the eye is sensitive, will produce a result in monochrome which is a faithful reproduction of the subject as seen by the eye. On the other hand, it removes an appreciable proportion of the light to which the film is sensitive and so requires an increase in the exposure time. The K-1½ or the Kodak Color Filter, being roughly half-way between the K-1 and the K-2 is recommended by Eastman Kodak Co. for general amateur use, as the effect produced is usually *adequate* and yet the exposure is not unduly prolonged.

Colors in Subject

A fourth yellow filter, called G, is a deep yellow. As can be seen in Figure 2 this filter removes an appreciable quantity of the blue to which the eye is sensitive. By doing this, it allows less blue light to strike the film than corresponds to the visual impression of brightness and for this reason the blues will photograph darker than the eye sees them. This is usually referred to as *over-correction* because the photographic monochrome is not a faithful representation of the blue as it appears to the eye. There are many instances, however, when this over-correction is vital, in order to give a photographic impression of the scene as the eye saw it. The simplest example of this would be a scene in which a light brown typical California hill, a yellow haystack or a lovely blonde is shown against the blue sky. As the blue, particularly near the horizon, appears quite light to the eye and the yellow haystack does also, a strictly faithful rendering of these colors in monochrome causes them both to appear the same shade of gray. For this reason, the haystack or the hill might completely blend into the sky and be quite invisible in the photograph, or at best, the difference between them would be very slight and the hill or haystack not particularly evident. If now we produce a photograph in which the sky is darker than the eye would see it and keep the yellow haystack as light as before, there will be a marked difference in the shade of gray in

*Wratten filters will be used as examples without necessarily implying superiority, because their absorption characteristics are given in the valuable booklet: Wratten Filters by Eastman Kodak Co.

Figure 8. Rendition of Colors of approximately the same visual density by the use of filters.

Data: Leica camera with Du Pont Superior film.

Upper left	*(8A)*	*1/200 sec., F:6.3, no filter*	*print exposure 6 sec.*
Upper right	*(8B)*	*1/100 sec., F:6.3, yellow filter*	*print exposure 10 sec.*
Lower left	*(8C)*	*1/100 sec., F:6.3, green filter*	*print exposure 4 sec.*
Lower right	*(8D)*	*1/8 sec., F:6.3, red filter*	*print exposure 12 sec.*

which these two colors photograph and so in the print, the yellow object will stand out as being light against the darker background. Figure 8 shows the facts under discussion. The negatives were made in a Leica camera on Du Pont Superior film which was developed in DK-20 for 18 minutes. The prints were made on Kodabrom No. 2. Visually the yellow haystack was lighter than the blue sky at the top of the stack but note the photographic result when no filter was used. (No. 8A.) The yellow filter gave a more nearly correct result. (No. 8B.) The use of a green filter, (No. 8C), to be discussed later, gave a slightly darker haystack, and the red filter brings the haystack into sharp relief against a sky relatively much darker than it appeared to the eye. (8D, see also Figure 6, filter A.)

Another important use of yellow filters in general, is in the diminishing or removal of the blue haze, which almost invariably hangs over distant scenes. The Blue Ridge Mountains of Virginia are so-called largely because

of the haze which constantly hangs over them. As all films are more sensitive to blue than the eye, it will be the haze which photographs first and the scene behind will have no opportunity to record itself on the film. On the basis that a yellow filter is yellow because it removes the blue, such a filter, by diminishing or removing the blue light from that which affects the film, will allow the scene behind the haze to record itself on the film. Which filter to use of the several that have been mentioned will depend upon how completely we desire to remove that haze. For a scientific record, we might want to remove the haze completely, and so would use the G filter, or possibly one which absorbed other colors near the blue. In general, for a pictorial effect the impression of distance is obtained by allowing a certain amount of the haze to record itself, to produce that separation of planes known as aerial perspective. For a very light haze, it might be best to use no filter at all and for a very deep haze it might be well to use the G filter. No hard and fast rule should be laid down, the photographer should be allowed to produce the effect he desires based on an understanding of the principles involved.

We now have a new slant on colored light as distinct and different from colored pigment, and we know some of the reasons behind the uses of yellow filters. Next month the discussion will take up the color of the incident light, film sensitivity, and the usefulness of special filters.

Have you found the subject so mysterious? The idea that white light is made up of blue, green and red *light* mixed together requires a bit of thought but is not too difficult. The thought effort is well repaid by a much greater comprehension of the whole subject of light, films and filters. Remember: "What one fool can do, another can."

(To be concluded in April issue)

Cinema Section

Edited by

William A. Palmer

"That's A Trick!"

The Memoirs of a Trick Photographer

Roy J. Pomeroy

I WAS showing one of my first efforts in trick photography to the producer-in-chief in the studio projection room. On the screen Rod la Rocque was fighting a losing battle with a twelve foot shark. The shark's footwork was magnificent and so was Rod's, but finally the shark, now thoroughly annoyed, reached out and bit a sizable chunk out of our hero's leg.

My boss was spellbound until this moment, but when he saw the shark bite our high priced star on the tibia he laughed. "You can't fool me. That's a trick!" He was right, we never fed our stars to sharks, although there were times—but, as Mr. Kipling puts it, "That's another story."

Actually Mr. la Rocque made his spectacular underwater fight without even getting wet. He never saw the water much less the fish. The shark was not one shark but a whole series of sharks, none of them over four feet long. The one doing the biting being dead as a door nail when he did it.

Today "that's a trick," and "it's done with mirrors" are the catch phrases of the "special effects cameraman." This title was bestowed on the trick photographer, when it was decided that the public would feel happier if they did not know just how the rabbit came out of the hat. This shot could be made fairly simply today by any of the composite picture processes, but at that time they did not exist. The shark's gyrations, however, would be produced by exactly the same method. In a later article I will describe the modus operandi, but I believe I can do it more simply if I were to give you my story in proper sequence.

When I arrived at the Lasky studio in 1921, I found that every cameraman had his own pet trick which he did extremely well, but because such work had to be done during the production of the picture, he had no time to really spread himself. There was no special equipment and little organized effort in this direction with the exception of the "Hall process."

Walter Hall, a scenic artist employed by Lasky's—now Paramount—had invented a process to utilize paintings on glass to augment motion picture sets, or to add trees, mountains, houses and whatnot to exterior scenes. Although it was both expensive and cumbersome it produced superb results, and is the daddy of a host of modifications which are in constant use today. His brain child has saved literally millions and yet Walter died in comparative want and obscurity. Today these are known as "glass shots." In '21, however, he was riding the crest of the wave and his carefully guarded quarters on the lot housed a large staff of clever artists and artisans.

The studio management wished me to learn all phases of picture production and my orders were "to keep my eyes open and my head shut." This mysterious job of mine led to the usual speculation as to whose body I had seen buried. It was due, however, to nothing so complex.

At the time of taking a job with Lasky's I was an illustrator in New York, with some experience in the design of stage sets and scenic effects. Originally educated in engineering I had followed my natural bent for art and photography. Mr. Clarke, the studio manager, became interested in some photographic inventions of mine, and was especially intrigued by some weird effects produced by photographing some of my miniature sets with a motion picture camera. Finding that I knew nothing whatever about the operation of a studio, he suggested to Mr. Lasky that I be sent to the West Coast to study production methods for three months, after which I was to return with him to the Eastern studio which was to reopen at that time. So here I was, in open mouthed but silent wonder at everything I saw.

I had, as unobtrusively as possible, stuck my nose into every department, but I found Walter Hall's to be inviolate. It was the one which I was the most anxious to see, so I went over and hit him for a job. I got it. For days I sat in a little shed mixing paint on a slab with a spatula. Ivory black and white had

to be carefully mixed to produce ten tones of gray to match a tone chart ranging from black to white. These I later found were used by the artists in painting the glass. During this time I never saw an artist or, in fact, anyone else; apparently I was doomed to spend the rest of my days in "solitary" mixing and filling tubes with gray paint. "How do you like the Hall process?" I straightened my stiffened back to see Walter Hall grinning at me. "Fine" I answered, trying to get an enthusiastic ring into my voice, "what I've seen of it." This apparently was the "open sesame" because he at once led the way to his house of movie magic.

In the big skylighted studio I was greeted by the corps of artists who had been busy painting on sheets of plate glass set in frames. Here was a portion of a Hindu temple, there the peak of the Matterhorn while on another an artist had drawn the perspective of a street with meticulous care. They all knew about my paint mixing and seemed vastly amused by it. Later I found this had been an attempt to force my hand. If I was in the studio through any "pull," Walter figured, I would have complained bitterly to my overlord after the first couple of days in my dungeon. "Clever people, these trick photographers!" I decided.

The next day, bright and early, we were on the big stage where an immense set had been built, the great hall of an English castle filled with battle flags and armor. The only place in England which might have housed it was Paddington station, but everyone else was satisfied and so was I. It was our job to extend the sides and put a fan vaulted ceiling on it. An actual ceiling would not only be prohibitive as to cost but also would have prevented the correct lighting of the set, which was accomplished by daylight, supplemented by alternating current arcs—the famous Klieglights. These open arcs were responsible for "klieg-eyes" or opthalmia, from which none of us were immune.

The camera had been placed on a six foot platform, 12 feet in front of which was a sheet of plate glass, about six by eight feet square. It was held in wooden guides which would permit removal and replacement without altering its original position. After consulting the director, Hall adjusted his camera for the correct position for the long shot, and then ordered the tripod to be anchored down with wires fitted with turnbuckles. None of these tripods could be moved until the shot had been made and given the final okay, thus a familiar sight in those days were tripods covered with tarpaulin dotting the landscape of the old Lasky ranch. I took my station beside the sheet of plate glass, armed with a small brush and a pot of paint. My life as a trick photographer had begun.

With much colorful profanity, which seemed an integral part of the process. Hall squinted through the prism finder and directed me in placing small dots on the glass to indicate the position of the walls and the space to be occupied by the painted ceiling. The final painting would be opaque so these dots were joined to show the "mat line" where the steel and glass roof of the stage would be blocked out. In this portion was placed a gray scale composed of numbered squares of gray paint ranging from black to white. These paints looked strangely familiar. A test shot was now made of the completely lighted set to determine the accuracy of the mat line and also, by photographing the gray scale and the set simultaneously, to give a monochrome tone-key for the artist.

En route to Hall's studio we stopped by the laboratory to pick up a bottle of "soup de jour" in which to develop our test. In those days all negative film was developed by the rack and tank method, correct development being determined by inspection. Each laboratory chemist had his own pet soup, the

formula of which was a carefully guarded secret. They were mostly metol-hydroquinone to which was added "boost" whenever they showed signs of exhaustion. One chemist confided in me that his "boost" was largely caustic soda! Hall tried to get his stuff developed while the soup was fresh and before any dynamite had been added, and was always careful to keep on the good side of the man who did the negative development. At a much later date I mildly suggested the possibilities of "time and temperature," but was thoroughly squelched by the assertion that it was a "lot of applesauce" and "that gamma was a term only used by such impractical scientific cranks as Eastman and myself." I was glad he mentioned Eastman, it took some of the sting out of the rebuke. It was not until the advent of pan film that this was adopted. Gamma, however, was still in the dog house.

Our test film having been developed and dried, an enlargement was made from a single frame which was now turned over to the artist. This gave him not only a monochrome picture of the actual set by which he could lay out the perspective, but also a photograph of the numbered gray scale. This was cut out and matched carefully with the tones in the picture on which he then marked the corresponding numbers. The paints he used were identical in tone with those of the original scale and numbered accordingly. I was glad now that I had mixed these so carefully.

For the next few days I was permitted to watch the artist at work and to assist where I could. On the glass which had been removed from its guides and set up in the studio, he first put on an opaque priming where the ceiling was to be painted down to the "mat line" which he carefully preserved. On this he drew the perspective of the ceiling to conform to that of the enlarged picture of the set. The research department had provided a picture of a fan vaulted ceiling from which he made a careful drawing. This was blocked in broadly with those tones indicated by the numbers on the enlarged picture of the set, after which the detail was meticulously painted, not forgetting the slight halation from the windows. Today a host of architecturally minded fans would write to the studio pointing out that nowhere in England would one find a great hall with a fan vaulted ceiling. Possibly so, but neither would they find the great hall! In those days, artistic license was permissible and the result of the combination was undeniably beautiful.

The day for the actual shooting arrived. The painting was set in the register guides and carefully lighted so that it would match perfectly with the actual set. Seen through my blue glass the effect was startling when the set took on a magnitude I would not have thought possible, and the results on the screen were equally spectacular; not a line or a vestige of a false tone which might spoil the illusion. Every one agreed that the "great hall" was a perfect shot!

The picture in which this shot appeared was "Beyond the Rocks," written by Elinor Glyn, and starring Gloria Swanson and Rudolph Valentino, and is responsible for a Hollywood legend. When Elinor Glyn arrived on the set she was horrified to find that someone had placed china cuspidors on nice rubber mats at strategic points. She called the director and pointed out quite vehemently that a nobleman would never have such things in his castle. The director agreed and called the prop boy. "You ought to know better than to put china cuspidors in a set like this. Bring out those brass ones!" It is a good yarn, but should be taken with a good many grains of salt—like most Hollywood legends. Mr. Sam Wood, our director, is an erudite and well travelled gentleman, and if he did

say it, it was merely to get a rise out of our charming titian haired authoress. He has recently added to his laurels by his superb direction of "Goodbye Mr. Chips."

And so ended my brief glimpse into Hall's two-dimensional world, during which I had acquired a sincere respect and affection for this man who, without any previous knowledge of optics and photography, had been so brilliantly inspired. During the next few years he clung to his tried and true methods and refused to consider any change which might have simplified them. This was not due to obstinacy, but because of his inability to change. Improvements and modifications of his process were being perfected which were less expensive in operation and of greater scope. The Hall process, as he practiced it, became obsolete.

A new management came to the studio and with it, Gordon Pollock, a young inventor whose efficient process is in use today. Hall could not adapt himself to this new method. His dismissal was a shock from which he never recovered; his few years of fame and fortune were at an end, so he returned to his old job as scenic artist. For years he would not come near us and then one day I had occasion to visit the studio scenic department, where I found my old boss mixing paint. It brought a lump into my throat. But—as we say here—"That's Hollywood!"

This is the first installment of an extensive series of articles in which Mr. Pomeroy will give you at first hand the inside story of his long experience as an expert in trick motion picture photography. The articles will be run consecutively except for occasional interruptions, and will contain a wealth of valuable information on Hollywood trick shot technique. The thumbnail biography below shows that he is eminently qualified to speak on this subject.—Ed.

Roy J. Pomeroy

Born Darjiling, India, in 1893. His father a noted artist and once Director of the Indian Art School at Calcutta. . . . He was educated in England, France and America. . . . Studied electrical engineering at Ohio Wesleyan University—art under Frank Duveneck at Cincinnati Art Institute. . . . Took postgraduate course in photographic chemistry. Was electrical engineer, newspaper artist, illustrator, portrait painter. During world war was expert on aerial photography and aerial navigation. . . . Some of his war inventions were cameras for aerial photography, bomb sights and instruments for aerial navigation. . . . Produced special photographic effects for *The Ten Commandments*, such as the opening and closing of the Red Sea (a remarkable accomplishment, if you remember your pictures). . . . Invented transparency process for the production of composite pictures, upon which he holds six patents. . . . Organized first department to record sound on film in Hollywood. . . . Directed various sound pictures, including Paramount's first talking picture, *Interference*. . . . Won an "*Oscar*" from the Academy of Motion Picture Arts and Sciences for work on the picture *Wings*.

"Rugged Outline" — *R. D. Kaufman, San Gabriel, Calif.*

First Award—Advanced Class

■ Mr. Kaufman has seen an extremely interesting form here. There is splendid variation of tone values in the material, and both the tone values and the principal directional lines build up toward the peak in very effective fashion. It is true, of course, that the cloud form behind the peak adds a little extra "kick" to this point through increased contrast; but we do not feel that this rather filmy, indefinite cloud form with its complicated outline is quite in keeping with the stark simplicity which is the principal theme of the picture. If we are to have cloud forms here, they should be solid looking with clean and simple outlines so that their feeling will conform to the main feeling of the picture. We cannot see that any cloud forms are really necessary, however, since a clear, smooth sky will probably best express the feeling which is so well brought out here.

Data: 4 x 5 Graflex, Series D with Kodak Anastigmat lens; E. K. Super XX film in DK-50. 10 x 12½" print on Defender glossy.

"Poise" *Richard Rundle, San Francisco, Calif.*

First Award—Amateur Class

■ We feel that the pose is quite good here. Mr. Rundle has avoided the common tendency to look for poses which show extremely violent action. As this picture shows, the feeling of the subject can often be presented more successfully in a comparatively quiet passage of the dance. It is wise to leave plenty of space above and about the figure to help the feeling of free movement and the out-of-doors atmosphere. However, such spacing must be justified at the base of the print as well as on the other three slides. It is almost always undesirable to have any object appear to rest almost on the base of the print. This holds good for trees and other such forms as well as for figures. In addition to that, the base material, whatever it may be, should appear firm enough and of sufficient extent to give the impression that the figure is adequately supported in the picture space. Consequently, there should be at least another quarter of an inch of space added to the base of the print, and this material should be dodged in to a fairly dark tone.

Data: Rolleiflex with f:3.5 Tessar; Agfa Super Pan Supreme film, exposure by Weston reading; developed in Agfa 17; 10 x 13″ print on Defender Velour Black I in Agfa 125.

Second Award

Amateur Class

"*Nobo*"
Wm. Holgers,
Berkeley, Calif.

■ The expression is quite good here and the modeling of the face, while not strong, is probably sufficiently so for this face. The spacing is quite good in most respects. We are glad to see the eyes well up in the picture space with a sufficient expanse of body below to give good support for the head. Note also that the base of the print is nicely filled in so that no tag-end corners are left to weaken the arrangement. There appears to be just a tiny bit of unnecessary space on the left. We could trim away about half the distance from the head to the edge of the print, and by so doing, give better justification for the direction of the eyes. There is no need for more space on the right so far as we can see. We think it would help a little if the ear were not quite so strongly lighted; since as things are, it contrasts strongly with the dark background and becomes a bit more prominent than is desirable. Some correction could be brought about here by dodging.

Data: 2¼ x 2¼" Zeiss Super Ikonta B; 3 in. Zeiss Tessar f:2.8; 1/50 sec. at f:16; Synchro sunlight exposure with one small flash bulb; E. K. Panatomic X in GDX; 9½ x 10½" print on Defender Velour Black in Amidol.

Third Award

Amateur Class

"*Three Little Kittens*"
Whitman Ide,
Piqua, Ohio

■ We find an exceptionally fine grouping in this picture, and anyone who has worked with kittens will realize that it is no small task to successfully achieve such a nicely conceived arrangement as this with such playful material. The variation in the coloring of the kittens adds an element of interest, and it was a wise choice to place the lightest colored kitten so that it dominates the group. Next best alternative would be to have the darkest kitten in the dominant position. Poorest choice for the principal subject would have been the kitten of intermediate coloring; since this kitten quite obviously does not have the tonal force of the other two. As things are the spacing appears rather static, due to the fact that the amount of space above and below the group is exactly equal. This spacing should be varied with a noticeably greater amount of space above the group than below. When such spacing is adopted, the balance of the group in the picture space appears more comfortable, and it will be evident that the eye moves about in the picture space more freely. It is too bad that the print is rather grainy, for full rendition of detail would add much in this case.

Data: 9 x 13" bromide print.

Fourth Award

Amateur Class

"Roof Tops"

F. J. Enos,

San Mateo, Calif.

■ Mr. Enos has found an interesting pattern in this material with the tallest chimney combined with the largest expanse of roof forming a point of emphasis. Notice that the elements of interest here are based on design and on the intriguing variety of shape, size, direction, etc. of the roofs. This print is apparently a considerable enlargement from a small portion of the negative. Mr. Enos has made a wise choice in keeping the print small and retaining good tonal values, rather than forcing a large print at the expense of quality.

Data: 4½ x 6″ bromide print.

Fifth Award

Amateur Class

Victor Randle,

San Francisco, Calif.

■ This strikes us an an exceptionally characteristic picture of San Francisco's Golden Gate. Possibly the fact that it is a picture of the Golden Gate has tempted the maker to include a suggestion of the near shore—feeling that that was necessary for a complete presentation of his subject matter. However, looked at from the pictorial point of view, the whole picture here is built on the exceptionally beautiful sky. The tiny lighthouse serves to build up the grandeur of the sky by indicating scale. Since the sky is the picture, there is no need for such a large area of water, since the larger this water area is, the more it tends to dilute the effectiveness of the sky. Consequently the picture is much more effective if we trim at least three-quarters of the distance from the base of the print to the base of the lighthouse away. If one feels the necessity he can trim correspondingly from the left to re-establish print proportions.

Data: 2¼ x 2¼″ Rolleiflex; 3 in. f:3.5 Zeiss Tessar; E. K. Panatomic X in Edwal 12; 10½ x 12″ print on Agfa Cykora Royal in Agfa 125.

Monthly Competitions

Scoring for Club Trophy Cups

The following won prizes for their clubs in the Advanced Class: R. D. Kaufman, for The Pack Rats; Glen Fishback, for the Signa Phi Nothing; C. Stanton Loeber, for the E.P.I.C. Pool; and Herbert P. Bond for the Specialists Camera Club.

The following won prizes for their clubs in the Amateur Class: Richard Rundle, for the California Camera Club; William Holgers, for the Oakland Camera Club; and F. J. Enos and Victor Rundle, for the Photographic Society of San Francisco.

The following prize winners have no club affiliation: Francis Wu and Whitman Ide.

Contributing Clubs

Aluminum Camera Club (New Kensington, Pa.)
Aremac Camera Club (San Francisco)
Birmingham Camera Club (Ala.)
Blackhawk Camera Club (Davenport, Iowa)
Boulder Lens Club (Colo.)
California Camera Club (San Francisco)
Camera Club of Oakland (Calif.)
Camera Club of Richmond (Va.)
Chaffey Camera Club (Ontario, Calif.)
Columbus Photographic Society(Ohio)
Dallas Pictorialists (Texas)
E.P.I.C. Pool of San Francisco
Exeter Photographic Society (Calif.)
Fort Dearborn Camera Club (Chicago, Ill.)
Fort Wayne Camera Club (Ind.)
Fotoklub Zagreb (Jugoslavia)
Greenbelt Camera Club (Md.)
Green Briar Camera Club (Chicago, Ill.)
The Lens Hawks (New Ulm, Minn.)
Light & Shadow Club (San Jose, Calif.)
Manhattan Camera Club (N. Y.)
Marin Camera Club (Calif.)
Maui Camera Club (T. H.)
M.G.M. Amateur Camera Club (Culver City, Calif.)
Miniature Camera Club of New York
Nashville Camera Club (Tenn.)
Notan Pictorialists (Alhambra, Calif.)
Pacific Pictorialists (San Francisco)
The Pack Rats (Pasadena, Calif.)
Pasadena "Y" Camera Club (Calif.)
Pasco High School Camera Club (Wash.)
Photographic Society of Philadelphia
Photographic Society of San Francisco
Queen City Pictorialists (Cincinnati, Ohio)
Reading Camera Club (Pa.)
Rothschild Camera Clinic (Los Angeles, Calif.)
Salt Lake Camera Club (Utah)
San Pedro Camera Club (Calif.)
Santa Barbara Camera Club (Calif.)
Sierra Camera Club (Sacramento, Calif.)
Signa Phi Nothing (Sacramento, Calif.)
South Plains Camera Club (Lubbock, Texas)
Specialists Camera Club (Hollywood, Calif.)
Telephone Camera Club of Manhattan
Toledo Camera Club (Ohio)
Utica Camera Club (N. Y.)
Y.M.C.A. Camera Club (Victoria, Canada)

STANDING OF CLUBS

Large Clubs Advanced Class

California Camera Club	5
Manhattan Camera Club	3

Small Clubs Advanced Class

Pasadena "Y" Camera Club	15
Signa Phi Nothing	7
The Pack Rats	5
E.P.I.C. Pool	2
Rothschild Camera Clinic	2
Specialists Camera Club	1

Large Clubs Amateur Class

Miniature Camera Club of New York	10
Amherst Camera Club	5
California Camera Club	5
Photographic Society of San Francisco	5
Oakland Camera Club	4
Detroit Camera Club	1

Small Clubs Amateur Class

Camera Club of San Pedro	3

SUMMARY OF COMPETITION RULES

1. Open to all, amateur or professional, club member or non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue.

Correspondence*

What Is Good Photography? (Concluded)

Dear Sirs:

I have an aversion, as I know you do, for any exchange of opinion, whether in your columns or elsewhere, that becomes no more than a competition in ill-tempered intolerant name-calling.

For this reason I have avoided replying to the many letters of criticism that were called forth hy my attempt to outline photographic principles in the November issue of Camera Craft. It was a pleasure to note that a later issue (January) brought forth other letters more or less in agreement or defense, including one from a former hut fair-minded critic, Jack Wright, and one from Ansel Adams. To have the friendly interest and approval of these correspondents is a satisfaction, particularly with respect to such a distinguished photographic craftsman as Ansel Adams. I look upon what he says as of notably greater significance than the combined words of those who attempted to dispute my contentions—and that includes the latest and most verbose disputer in February Camera Craft.

You, Mr. Editor, will recall that you asked me to tone down a certain passage in my article which might have been interpreted as an uncomplimentary allusion. This was done, and there was in consequence no disparaging reference to any individual. Since a well-known photographer, however, evidently feels that my remarks applied to him, and since you have now published a reply by him containing derisive references to professors in general and to myself, obviously, in particular, it is now only fair that you should publish this statement, even though it may refer to my critic's opinions with even less tolerance than he showed for mine.

As my paper was concerned with a controversial subject, we knew that its statements would meet with a critical reception. There could be no objection to this if the criticisms were confined to the subjects under consideration. But when the criticism stoops to irrelevancies, as in the article entitled "Come now, Professor!", I feel (quote) obliged to raise a polite protest.

Fair-minded and reasonable individuals will join with me in resenting would-be humorous and derisive references to professors. Whether a man does or does not earn a living as a college instructor has no connection with the subject of intelligent standards in photography. Any attempt to link the two only betrays fuzzy thinking.

The limitations of time and space forbid that a reply be made to all the error in my critic's article, since it is a succession of unsubstantiated assertions rather than an expression of analysis and principles, but one may point out as an example that he laid himself wide open by his invidious references to "classroom pontifications" and "academic cerebrations." I take delight in calling attention to the fact that this particular individual has outdone the professors in pontifical utterances of the kind he derides. He is himself at once the critic and the model of what he condemns.

Let me conclude by saying that such critical remarks as may have occurred in my article were applied to the whole body of photography. To find a sting in these criticisms is simply to confess that they are merited. I am confident that the number of those who appreciate straightforward photography is on the increase, and in consequence I hope that the number of your readers is growing who may he interested in an attempted analysis of principles bearing upon straightforward photography. It was for these I wrote, and not for the die-hards who are too set and inflexible in their ways to entertain changing ideas.

Sincerely,
Roi Partridge

Oakland, Calif.

Dear Sir:

Let me offer Mr. Mortensen my sincere congratulations on his most recent article in Camera Craft, "Come Now, Professor."

Ever since reading those of the "pure form" group by Messrs. Weston, Partridge and Adams I've been waiting to hear a retaliation such as William Mortensen's, who in my mind very ably justifies his position.

Sincerely,
Herman Konnerth

Reno, Nevada

Challenge Reversed

Dear Sirs:

In the letter which you printed in the February issue of Camera Craft from the Pasadena "Y" Camera Club, I stated that the Pasadena Pack Rats had challenged us to compete against them in your contest. After the letter was published, several of our members told me that I had made a mistake in the fact that the Pack Rats did not challenge us. I would like to take this method of letting the Pack Rats know that we are sorry for this mistake and wish to assure them that it was not intentional. However, the fact remains that the Pack Rats have won the cup for the past three years and that should be a challenge for any club. Our club wishes to announce publicly that we are challenging them for the 1940 cup.

Sincerely,
W. Jerome Collins
Secretary,
Pasadena "Y" Camera Club

*Readers are requested to add a postscript to letters intended for this department, expressly granting permission to publish, **and are urged to write as briefly as possible.**—Ed.

About Backgrounds

Dear Sir:

I quote from Mortensen's article on "Seven Deadly Errors" in the January edition of Camera Craft, page four:

"A familiar trick of amateurs is to have the subject sit on or lean against some part of the background. This procedure always yields a bad picture because it violates the third axiom by failing to preserve the isolation of the background."

This seemingly sound piece of advice from a man who is supposed to know his business is at odd variance with your cover design, which shows handsome Betty Jane Rodes either sitting or leaning on (or both) a most emphatic background. Presumably given the position of honor on the cover because of merit, it either gives the lie to brother Mortensen, the 23rd Los Angeles International Salon, or you.

What's the answer?

Very truly yours,
Carl H. Claudy, Jr.

Washington, D. C.

I. Q. Error

Dear Sirs:

Re:—question #5 of "I. Q." on page 97 of Feb. Camera Craft. I want to register a disagreement with your answer on page 103. The reverse is true. Kodachrome Type A is designed for use with artificial light and has a Weston rating of 12 with photofloods and no filter. When used in daylight with the Type A daylight filter it has a Weston rating of 8. I would be pleased to see a correction in your next issue.

I like the "I. Q." column and trust the error will be rectified.

Very truly yours,
Chas. A. Weid

New York, N. Y.

Dear Sirs:

. . . Score for Camera Craft, 90%.

F. S. Wright

Kingsport, Tenn.

Dear Sirs:

. . . Question #5 is answered wrong. Am I right or am I?

Yours very truly,
Earl Lindsly
W. R. Ernest

Stroube Photo Dept.
Baton Rouge, La.

Dear Sirs:

. . . It seems to me that you have misread the Weston instructions for Type A Kodachrome. . . .

O. E. Stanley

Portland, Ore.

Dear Sirs:

. . . the answer on page 103 disagreed with me as well as with the Weston Electrical Instrument Corp.

Respectfully yours,
Wm. C. Holman, Jr.

Albany, Ga.

Camera Craft apologizes for a regrettable reversal of fact, and a piece of sloppy editing.—Ed.

A Competition for Young People

Dear Sirs:

I think the suggestion of Charles Cleek a fine one. It would be my pleasure to enter prints in such a competition. I am sixteen years of age, also a reader of your fine magazine.

Photographically yours,
John E. Amborn

Fort Madison, Iowa

Dear Sirs:

I would like to register my hearty approval of Charles Cleek's suggestion. . . .

Sincerely,
Peter H. Masson

Dunsmuir, Calif.

Dear Sirs:

Reader Cleek is correct. . . . Many . . . will no doubt be surprised at the amazing high quality of prints that will be entered in such a competition. . . .

Sincerely,
Andrew F. Lehan

Muskegon Heights, Mich.

Replies to Mr. Cleek's letter, of which the above are typical, show unquestionable enthusiasm, but so far have not arrived in sufficient numbers to form the basis of a successful competition.—Ed.

Pictures With A Purpose

Dear Sirs:

Here's our check, Gentlemen, in payment for those 18 copies of your recently-issued book, entitled "Pictures with a Purpose," printed on Warren's Lustro Gloss Paper.

We are more than glad to have these items available here for use in connection with certain of the special promotional activities conducted by this department. The book is what we call an exceptionally fine demonstration of practical printing results obtainable on Lustro Gloss Paper. Moreover, it contains an abundance of helpful information about proper photographic technique. As such, we feel sure that the books will do a very-much-worth-while kind of a promotional job for us.

Perhaps we should take the occasion, incidentally, to extend to you our sincere compliments upon the educational value of your production. We are particularly impressed with the helpfulness of the diagrams you employed as a means of indicating proper position and right lighting effects for taking pictures. You certainly make the technique appear exceptionally clear—even to a humble layman. Beyond that, we must further confess to no end of admiration for the appealingness and variety of photographs you have selected for your book. We are truly quite proud to see that Lustro Gloss Paper has contributed a share, at least, to the effectiveness of this production.

Here's wishing you much continued success in your worthy endeavors.

Cordially yours,
Elmer S. Lipsett

S. D. Warren Co.,
Boston, Mass.

Club Notes

Forthcoming Exhibitions

Forty-first Annual Photographic Salon, under the auspices of the Photographic Section of the Portland Society of Art. Address Bernice Breck, Secretary, Portland Society of Art, 111 High St., Portland, Maine. Closing date March 11, 1940. Entry fee $1.00, limit four prints. April 7 to May 5, 1940.

Third Salon of Photography of the Camera Club of Fitchburg. Address Secretary Elsie L. Lowe, Pearl Hill Road, Fitchburg, Mass. Closing date March 15, 1940. Entry fee $.50, limit four prints. April 1-30, 1940.

Second Annual Salon of Photography of the Newport Camera Club. Address: The Secretary, Newport Camera Club, 41 Mary St., Newport, R. I. Closing date March 25, 1940. Entry fee $1.00, limit four prints. April 14 to 22, 1940.

First International Pictorial Roundup. Address Ben F. Marable, Business Mgr., Box 151, Cheyenne, Wyoming. Closing date April 1, 1940. Entry fee $1.00, limit four prints. April 15 to 30, 1940.

1940 Baltimore International Salon of Photography. Address J. S. Rowan, Salon Secretary, 2315 Homewood Ave., Baltimore, Md. Closing date April 8, 1940. Entry fee $1.00, limit four prints. April 19 to May 5, 1940.

7th International Salon of Milwaukee. Address A. P. Bellinghausen, Salon Chairman, c/o Milwaukee Art Institute, 772 N. Jefferson St., Milwaukee, Wisc. Closing date April 10, 1940. Entry fee $1.00, limit four prints, 6 color slides. May 2-15, 1940.

New Jersey National Salon of Photography—1940. Address Salon Committee, Orange Camera Club, 1 South Clinton St., East Orange, N. J. Closing date April 15, 1940. Entry fee $1.00, limit four prints. May 15 to June 15, 1940.

The National High School Salon of Photography. Address American Museum of Natural History, 77th St. and Central Park West, New York, N. Y. Closing date April 15, 1940. Limit six prints. All high school students are eligible to enter. May 18 to June 9, 1940.

First Toledo International Photographic Salon. Address Carl F. Reupsch, Salon Chairman, Toledo Museum of Art, Toledo, Ohio. Closing date April 17, 1940. Entry fee $1.00, limit four prints. May 5 to June 2, 1940.

Second Annual Photographic Salon, Racine Camera Club. Address Rou Sorensen, 2317 W. Prospect St., Racine, Wisc. Closing date April 23, 1940. Entry fee $.50, limit four prints. April 27 to May 4, 1940.

Fifth Anthracite Photographic Salon, sponsored by the Scranton Camera Club. Address Fae C. Allen, Secretary, Scranton Camera Club, Everhart Museum, Scranton, Pa. Closing date April 27, 1940. Entry fee $1.00, limit four prints. May 11 to June 10, 1940.

Third Rocky Mountain National Salon of Photography. Address Russell F. Heckman, Secretary, 1429 Marion Street, Denver, Colorado. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 1 to 14, 1940.

Third May Salon of the Springfield Camera Club. Address T. C. McMillen, Secretary, Springfield Camera Club, Y.M.C.A., Springfield, Ohio. Closing date May 1, 1940. Entry fee $1.00, limit four prints. May 6 to 21, 1940.

Third National Memphis Salon of Photography. Address Avery N. Stratton, Brooks Memorial Art Gallery, Memphis, Tenn. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 2 to 30, 1940.

First Annual International Vancouver Salon of Pictorial Photography. Address Vancouver Photographic Society, Care of Vancouver Art Gallery, Vancouver, Canada. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 3 to 23, 1940.

18th All-American Photographic Salon. Address James M. Rhodes, Director, c/o The Los Angeles Camera Club, 2504 West 7th St., Los Angeles, Calif. Closing date May 5, 1940. Entry fee $1.00, limit four prints. Opening date June 2, 1940.

Ninth Detroit International Salon of Photography. Address Detroit Institute of Arts, Detroit, Michigan. Closing date May 15, 1940. Entry fee $1.00, limit four prints. June 4 to 30, 1940.

Third Annual Lititz Springs Salon. Address C. B. Workman, Secretary, Lititz Springs Camera Club, Lititz, Pa. Closing date June 18, 1940. Entry fee $1.00, limit four prints. July 4 to 20, 1940.

Mr. T. J. Maloney, Editor of U. S. Camera Magazine and the U. S. Camera Annual, was the guest of honor at a cocktail party given by Mr. Ansel Adams at his San Francisco studio. Nearly 100 photographers and associates assembled to meet Mr. Maloney and the party was exceptionally pleasant and gay. Mr. Adams proved a considerate, skillful host who managed this unique gathering with ease. In addition to meeting Mr. Maloney, there was a good deal of "getting acquainted" among San Franciscans.

The 23rd Annual Salon of the Camera Pictorialists of Los Angeles is being exhibited at the DeYoung Memorial Museum, San Francisco, during February. A worthwhile show, this should be on your calendar of "musts."

March showings of the Kodak Exhibit: Bridgeport, Conn., March 22-23, The Stratfield; Chicago, Ill., March 8-17, The Congress; Hartford, Conn., March 30-31, The Bond Hotel; Milwaukee, Wis., March 21-24, The Pfister; New Haven, Conn., March 26-27, The Taft; Richmond, Va., March 11-12, The John Marshall; St. Petersburg, Fla., March 5-6, The Soreno; St. Louis, Mo., March 28-31; The Statler; Tampa, Fla., March 1-2, The Tampa Terrace; Wilmington, Del., March 15-16, The DuPont; Worcester, Mass., March 19-20, The Bancroft.

An exhibition of photographs by Brett Weston will be displayed at the San Francisco Museum of Art from February 27th to March 19th. Between 75 and 100 of Mr. Weston's excellent photographs will be shown, an event that no photographer will want to miss.

Forty-four prints by the staff photographers of the "Philadelphia Record" will be exhibited at The Franklin Institute, Benjamin Franklin Parkway at 20th, Philadelphia, Pa., during March.

An exhibition of prints by Dever Timmons, of Coshocton, Ohio, will be displayed during March at the Chicago Camera Club, 137 No. Wabash Ave., Chicago, Ill. The club also announces that the annual spring course of the school of photography will begin April 2nd. Enrollment is limited to one hundred students and as applications always exceed this limit those interested should apply for admission immediately. Write Mr. R. S. Lund at the above address.

The Lewis-Clark Camera Club, Box 611, Lewiston, Idaho, was organized recently and now has a membership of 25. The group offers its members a very interesting and varied program. Plans have been completed for their First Annual Salon which will be exhibited during March. Meetings are held the first Tuesday of each month at the Civic Club, 1205 Eighth Ave.

The Second Annual Maine Amateur Photographic Exhibition will be displayed at the Eastland Hotel, Portland, Me., from March 11th to 13th, inclusive. Residents in Maine and New Hampshire may submit prints without an entry fee but to those outside these states a fee of $1.00 will be charged. Cash awards will be made to the winning prints. Entry blanks may be secured from the sponsors, the Bicknell Photo Service, Inc., 15 Preble St., Portland, Me.

The Inter-Club competition sponsored by the Manhattan Camera Club of New York City was won by Larchmont (New York) Camera Guild; second prize went to Atlanta Camera Club, and third was tied by Lens Club of Bayonne and E.P.I.C. Pool of San Francisco.

We learn from the "Bulletin" of the Vancouver Photographic Society, Vancouver, B. C., Canada, that this enterprising group plans to submit prints to the CAMERA CRAFT MONTHLY COMPETITIONS. A hearty welcome and the very best of luck.

The California Camera Club, of San Francisco, Calif., will conduct an auto caravan to the snow country on Sunday, February 18th. Soulsbyville, near Sonora, will be the destination, selected for its excellent picture possibilities. Warm clothing, cameras, skis and sleds will all be standard equipment on this outing.

Palmy days are really coming. At least, so it would seem if this item in "Highlights," club bulletin of the Fresno Camera Club, Fresno, Calif., can be considered an indication of a trend. They report that the Manager of the Mason Building, of their city, is constructing a darkroom in his establishment. Are we looking into the too distant future when we see office buildings, apartments, etc., with darkrooms as standard equipment?

The Washington, Pennsylvania Camera Club, an active group with 100 members, meets in the Chamber of Commerce rooms the 2nd and 4th Mondays of each month. Correspondence should be addressed to Chas. E. Braun, Secretary, 64 W. Chestnut St., Washington, Pa.

The Women's Photographic Society of Cleveland, Ohio, are presenting a series of classes offering instruction in photography. A new series for advanced workers began Feb. 7th and with the other courses there are now classes meeting the first three Wednesdays of each month. Write Madeline Zupancic, 402 Finance Bldg., Cleveland, Ohio, for further details.

The U. S. Camera Exhibition is now being presented at the Art Center School, 2544 W. Seventh St., Los Angeles, Calif., for the only showing in the U. S. 300 prints, selected from 15,000 photographs, represent the finest in American photography. The Exhibition closes on February 23rd and we regret that this announcement reached us too late to be included in the February issue.

The Fort Dearborn Camera Club, of Chicago, Ill., recently held their annual election of officers and for a group that is about 98% male it seems an understatement to say that they made a surprising choice for President. Elected was Mrs. Anne Pilcher Dewey, well known for her excellent photographs. Mrs. Dewey is the wife of Mr. Roy Franklin Dewey who held this important office four consecutive terms some time ago. Our congratulations to Mrs. Dewey who, we feel sure, will lead the Fort Dearborn Camera Club to even greater heights during her administration.

The First Regional Convention of the Photographic Society of America for the Southeastern States will be held in Washington, D. C., at the Wardman Park Hotel, on March 1, 2 and 3. Two fine photographic shows will be exhibited and a very interesting program has been arranged. Write Mr. Don Bennett, Wardman Park Hotel, Washington, D. C., for further details.

An interesting program was recently announced in the "Skweegee," club bulletin of the Shorewood Camera Club, of Milwaukee, Wis. The members are to bring cameras, tripods and film and take two pictures of any one of three groups of objects. Lights of all kinds will be available and a month's time will be allowed in which the make the best possible prints from the two exposures, after which the results will be judged in the regular monthly print contest. The subject matter of the three groups is a secret and each photographer approaches the problem on an equal basis.

A "Grab Bag" Picture Contest will be a repeat program of the Gary Works Camera Club, Gary, Ind., announces their club paper, "Foto News." This idea proved a hit on its initial try and a return billing was in order. Slips of paper bearing various phrases, such as "Jitterbug," "Hole in One," "Three on a Match," etc., are sold to the members 10c each or 3 for 25c. It is up to the photographer to produce a picture that will represent the idea of the phrase. As many chances or phrases may be purchased as the member wishes and the money collected is used for prizes for the winning prints.

The Camera Circle is a group of eastern camera clubs who have formed this organization for the purpose of exchanging prints. Each club sends a group of 12 prints on tour to the clubs every four months. The clubs

keep each show for a two-week period. The clubs now associated with this new organization are: Long Island Photographic Society, Ashville Camera Club, Oswego Camera Club, Miniature Camera Club of Maryland and the Gary Works Camera Club.

Cash awards were distributed on January 17th to the successful contributors to the first monthly contest of "Adventures in Photography," radio program sponsored by NBC. $275 was distributed to the lucky photographers. Similar awards will be made in subsequent contests to be held each month. Listen to "Adventures in Photography" for complete details.

"Camera Clicks," the new house organ of Loeber's, 70 Post St., San Francisco, Calif., is a very informative little paper dedicated to furthering the fun of the hobby of photography. It covers news of San Francisco exhibitions, camera club activities, reports on the salon and competition progress of local photographers, hints and advice on how to improve your pictures, information on new products, etc. Written in a bright and easy style, "Camera Clicks" makes a lot of really interesting reading. A free copy will be sent gladly to those interested.

What Is Your Photographic I. Q.?

To test your photographic knowledge, try the following little quiz. Read the statements given below and check the correct answers. Turn to page 156 to determine your score. The perfect score is 100%; deduct 10% for each error. Excellent rates 90%; very good 80%; good 70%; fair to bad, below 70%.

1. Check one of the following developers whose origin may be said to be the result of an insect sting.
   - ☐ Metol
   - ☐ Pyro
   - ☐ Amidol
2. The immediate predecessor of the gelatin dry plate was the:
   - ☐ Collodian plate
   - ☐ Albumen plate
   - ☐ Calotype
3. The movie industry replaced nitrate film with cellulose acetate film because:
   - ☐ It was cheaper
   - ☐ It was more transparent
   - ☐ It was safer
4. One of the originators of the diorama is:
   - ☐ Daguerre
   - ☐ Eastman
   - ☐ Moholy-Nagy
5. Metol, normally a white crystalline powder, upon being exposed to the air will change from white to:
   - ☐ Pink
   - ☐ Tan
   - ☐ Light Green
6. The frame or picture projected from an 8 mm. movie film, in comparison with the area projected by a 16 mm. movie film, is which one of the following:
   - ☐ ⅛ the area
   - ☐ ¼ the area
   - ☐ ½ the area
7. When the vibrations of rays of light are to be restricted to a single direction it is necessary to use a:
   - ☐ Yellow filter
   - ☐ Lens hood
   - ☐ Pola-screen
8. In taking pictures in which the duration of the exposure is only one-millionth of a second, one of the following is utilized:
   - ☐ Compur shutter
   - ☐ Focal plane shutter
   - ☐ No shutter
9. The term "latent image" is applied to:
   - ☐ A professional model
   - ☐ Diffused portrait
   - ☐ Photo-sensitive material
10. The names Hurter and Driffield should immediately suggest which of the following:
    - ☐ Sensitometry
    - ☐ Stereoscopic photography
    - ☐ Bromoil printing and transfer

Notes and Comments

The new DeJur "Critic" Model 40 Exposure Meter, introduced by the DeJur-Amsco Corporation, of Shelton, Conn., is rated as one of the most sensitive developed in the field of light reading instruments. The manufacturers report that its sensitivity ranges from ½ foot candle to 2000 foot candles; film speed ratings from .3 to 800; and shutter speed ratings from 60 seconds to 1/2000 of a second. Other important features of the new model are: a zero adjusting screw; its angle of light acceptance is similar to that of the camera lens; and its design permits it to be used equally well in either hand. Price is $18.75. See your dealer or write the above address.

The Lens League Limited is a new organization devoted to the publishing of fine photographic books. In order to keep the quality of these books to a high standard and still offer them at reasonable prices, the Lens League will present them to the public by an arrangement similar to that of the Book-of-the-Month Club. Four books will be published during 1940, members of the Lens League Limited will receive these

volumes on publication, with the privilege of returning them in 10 days if unsatisfactory. The books will be offered to members of the League at great reductions, for instance, the first publication will be "Photographing in Color" by Paul Outerbridge, regular price $4.85, but to Lens League members $2.75. The other volumes planned for 1940 are: "California" by Edward Weston; "On the Kodachrome" by Ivan Dmitri; and "Steichen Omnibus" by Edward Steichen. Write to T. J. Maloney, 122 E. 42nd St., New York City, for complete details on the plan and publications of the Lens League Limited.

Transparo Art Corners. In the January issue, in describing these popular mounting devices, we neglected to mention that they are available in two styles: Plain and Duo. Plain Transparos are available with either black or write background but they have only one mounting effect which is invisible. The transparent corner which holds the print permits a full view of the picture. Prints may be mounted either permanently or so that they can be removed at will. Duo Transparos have all the above features but their double pockets permit the prints to be mounted with either the transparent effect or with colored corners. An important additional feature is that this double pocket allows the photographer to mount his prints with the negative underneath, where it is perfectly protected. Write the Engel Art Corners Mfg. Co., 4711 No. Clark St., Chicago, Ill., for sample packets.

Gevaert Company of America announces the opening of a branch in Seattle, Washington for the distribution of Gevaert Photographic Materials in Oregon, Washington, Idaho, Montana and Alaska.

The new Gevaert branch will be under the supervision of Mr. A. H. Graham. Address, The Gevaert Co., The Textile Tower, Seattle, Washington.

The Gevaert Company now has three branches on the Pacific Coast to facilitate operations and distributions of its product to the photographic trade.

Brooks open second store in San Francisco. Those enterprising young camera merchants, Mr. Belling and Mr. Silverman, will open their new photographic store on or about February 20th, at 56 Kearny St. The new store will be exclusively photographic and will supply complete photographic service in both the cine and still fields. Boris Silverman will be in charge at the new location, while Monroe Belling will carry on at the original store at 1048 Market St. The new store is sparklingly modern in design and fixtures and is equipped with full-view windows such as are used by modern jewelry shops. Another feature will be a constantly changing display of salon prints.

Jomar Liquid Universal Developer is now available in tubes of the same size and at the same price as present items in powder form. The solution is a concentrated, well-balanced chemical mixture giving negatives and prints of high quality. It keeps indefinitely in the unopened tube and extremely well when diluted for use. It is ready for immediate use on mixing with water and is especially recommended for workers who prefer solutions that are always fresh and easy to handle. A single tube will give 32 ounces of developer for the tank development of films, 10 ounces for enlarging papers, or 8 ounces for contact papers or films to be developed in a tray. Jomar Laboratories, 419 East 24th Street, New York, N. Y.

Stick-Um is a new liquid adhesive for mounting prints, manufactured by Pattee Adhesives, Pomona, Calif. It is quick drying, flexible, and dries transparent. Another important consideration is that any excess may be rubbed off easily. See it at your dealer's or obtain a bottle by sending 25c and your dealer's name to the above address.

A Pictorial Service Department has been inaugurated by S. Mendelsohn, 202 East 44th St., New York City, to help photographers with their synchroflash problems.

$110.00 in cash awards are offered to amateur photographers by the American Humane Association, 135 Washington Ave., Albany, N.Y. Pictures of children and of animals are acceptable as entries. Write the above address for a complete set of rules. Closing date June 15, 1940.

$200 in prizes are offered for photographs featuring the service, cultivation, shipping, merchandising or display of coffee and tea. The contest is being conducted by the Spice Mill, journal of the coffee and tea trade, 106 Water St., New York, N.Y. A complete set of rules may be obtained from the above address. Closing date is July 15, 1940.

A 32-page catalog on the Graphic and Graflex Cameras has just been published by the Folmer Graflex Corporation, of Rochester, N.Y. The catalog includes much helpful information on photography as well as complete descriptions of these famous cameras. A copy may be obtained free from your dealer or for 10c from the above address.

Photographic Dealers and Finishers from the eleven western states will gather for a joint convention in the Roosevelt Hotel, Hollywood, Calif., on March 21, 22, and 23, 1940. The gathering will be sponsored by the Photographic Dealers Association of Southern California and the Master Photo Finishers of America. A special photographic salon, open only to dealers and finishers, and trips through some of Hollywood's motion picture studios will be highlights of the meeting. For complete details write to Watson S. Rose, Photographic Dealers Association of Southern California, 416 W. 8th St., Los Angeles, Calif.

Cash awards of $225.00 will be given in a photographic contest sponsored by the Management of the Cypress Gardens, near Charleston, S. C. The contest is open to any visitor to the Cypress Gardens between the dates of Feb. 1st to May 1st, 1940. Further details from Eleanor Lambert, 598 Madison Ave., New York City.

Quality developing service is now being offered in San Francisco by the Action Studio, 89 Niagara Ave. Films are developed in individual tanks in DK20. A roll of 35mm. 36-exposure film, with an enlargement of every negative to 2¼x3¼ inches, is only $1.25. A choice of single weight glossy or double weight matt papers is also given. Write the Action Studio, 89 Niagara Ave., San Francisco, Calif., for complete details and prices on other finishing.

Photopedia. the master equipment and materials guide of the photographic industry, has inaugurated a new "Tip In Slip" service, designed to keep this master cata-

log completely up to date. Slips, covering all price changes and revisions, will be mailed to owners of Photopedias and they can be quickly tipped in on the pages to which they refer. United Catalog Publishers, Inc., of New York City, also announce that the second printing of the Photopedia is now complete and copies are available at the regular price of $1.95.

The House of Camera Bargains, Wells-Smith, Dept. CC-3, 71 E. Adams St., Chicago, Ill., are distributing a free bargain list, which covers all popular types of cameras and equipment. Write the above address for your free copy now.

The 1940 Trade Show and Conventions, to be held in Chicago, Ill., at the Hotel Stevens, from August 19th to 23rd, will be the greatest photographic event of this kind ever presented. The Photographers' Association of America and the National Photographic Dealers' Association will hold their conventions and will combine to sponsor the greatest Trade Show of all time. Two weeks after the sale of exhibit space was announced practically all had been reserved. The public is to be admitted to this great show, by invitation only, so see your dealer early and arrange for a ticket.

Last month Carl Dial, of Hollywood, gave a lecture on panchromatic make-up and portrait lighting, under the auspices of the Penn Camera Exchange, Inc. In order that their friends all over the country may not be deprived of this valuable information, Penn is making available a stenographic transcript of Mr. Dial's lecture. Copies are available to anyone outside of New York City . . . but the supply is limited, so write soon if you want a copy, to: Penn Camera Exchange, Inc., 126 West 32nd St., N. Y. C.

New "All-American" tilt and pan tripod head has been introduced by the Herbert George Co., 900 Merchandise Mart, Chicago, Ill. Sturdily constructed the "All-American" will tilt a full 180 degrees or swing in a complete circle. Large bearing surfaces and extra long handle permit easy and positive control. A conveniently located wing nut provides positive locking at any angle, and a large knurled collar locks the rotation. The "All-American" is widely distributed, so ask your dealer or write the above address for an illustrated folder.

Kel-Masks are a set of 16 die-cut, tough black paper masks that will insure clean white borders for your prints. 4x6" in size, the set of 16 provides masks in all amateur sizes from 1x1" to 3¼x4¼" and in addition two ovals and one heart-shaped mask. Price of set is only 25c. See your dealer or write Kelley Photo Sup. Co., 324-A N. Michigan Ave., Chicago, Ill.

J. Ghislain Lootens, F.R.P.S., announces the opening of his new studio at 277 Lexington Ave., New York City, for photographic instruction. Facilities are offered to a limited group interested in perfecting their photographic technique. Mr. Lootens will also continue to direct the classes in photography given at the Central Y.M.C.A., 55 Hanson Place, Brooklyn, N.Y., which have proven so popular in the last few years. For details of all classes or information on private instruction, write: J. Ghislain Lootens, 277 Lexington Ave., New York City.

Kodak Flash Synchronizer

A new low-priced Kodak Flash Synchronizer has been announced by the Eastman Kodak Co., of Rochester, N.Y. It can be used with all current model Kodaks having shutters accepting a cable release. The battery case holds two 1½-volt size C cells and the outfit is easily attached to the camera's tripod socket. While it is recommended that the Kodak Flash Synchronizer be used with the shutter set for bulb exposures, the purchaser can easily make his own adjustments for synchronization with shutter speeds up to 1/50 of a second. For this purpose a 2½-volt lamp, miniature socket, cord and plug to fit the lamp socket in the battery case are supplied with the simple instructions needed. The Kodak Flash Synchronizer is priced at $7.50.

The new Leudi Cinemeter for gauging exposure in motion picture work will give you a perfect reading for all speeds from 8 to 128. The Cinemeter, in a lightweight Bakelite case, which sells for $2.15 complete, is easy to handle, simple in operation, and the handiest "pal" for all home movie-makers. Sold in all good photographic departments . . . distributed by Mimosa American Corporation, 485 Fifth Avenue, New York City.

Graflex are celebrating their Golden Anniversary in a fitting manner for, after fifty years of manufacturing, they have announced new improved models of the 3¼ by 4¼" and 4x5" Speed Graphics to be known as the Anniversary Speed Graphics. Features of these new models are: a lateral shift of the front standard; a drop-bed locking rigidly and well out of the field of wide-angle lenses; a two-piece linked track for rack-and-pinion focusing of the wide angle lenses; dual focusing controls for right-hand and left-hand operation; a track lock to fix the lens in position after a critical focus has been obtained; a one-piece all-metal front standard; a new type of lock that fixes the front standard very rigidly; and a wire frame viewfinder that telescopes into the front standard when not in use, in addition to the existing parallax-correct-

ing tubular viewfinder that has been accorded such enthusiastic approval by its users.

A free booklet "Third Dimensional Portraiture," by John Hutchins, is being distributed by the Fink-Roselieve Co., 109 West 64th St., New York City. The booklet offers the amateur many valuable hints on portrait lighting. Write the above address for your copy.

Brooks Candid Camera Night at the Club Moderne will be a gala occasion in San Francisco photographic circles. The event will take place Tuesday evening, March 12th, at the Club Moderne, 555 Sutter St. The Club's regular dinner, which is ordinarily $2.50 per plate, will be served on Brooks' Candid Camera Night for only $1.25. There will be three floor shows and plenty of light. Door prizes galore. Mark March 12th in your date book and get your tickets at once, as all are reserved and limited. Tickets are on sale at the Brooks Stores only, 1048 Market St., and 56 Kearny Street.

The new Bee Bee Chrome Table Tripod has been introduced by Burleigh Brooks, Inc., 126 W. 42nd St., New York City. This new addition to the famous Bee Bee line is compact and light but rigid enough to support even heavy 4x5 cameras for table top work. Positive stops limit spreading of sections, preventing accidental tipping. Price, $2.00.

The Mini-Spot is a new miniature spotlight built on an entirely different design, introduced by Beattie's Hollywood Hi-Lite Co., Hollywood, Calif. Designed like a projector, this small (5-inch high, weight 20 ounces) but efficient spotlight, throws a sharp circle of pure white light that is easily adjusted. Complete with a 100-watt globe, cord and switch, price $15.00. Descriptive circular is available from the above address.

Commercial Metal Products Company, 2251 W. St. Paul Avenue, Chicago, Ill., manufacturers of a complete line of photoflood reflectors, lighting accessories, dark room lamps, sunshades, filters, squeegee plates and similar accessories, announce a new catalog. Write them direct for your copy.

Price reductions on Agfa Triple S Pan and Superpan Press cut films have just been announced. These premium high-speed films are now available at the same prices as regular panchromatic cut films. General adoption by press and commercial photographers, permitted savings in quantity production which have been passed on to the consumer.

Custom built cases for cameras and equipment, salon print cases, and a special exposure meter carrying case are offered by the American Trunk & Case Co., 34 S. Wells St., Chicago, Ill. The camera and equipment cases are made to fit the individual's needs. It is only necessary to supply an accurate list of equipment to be carried and the case is made with the accessories fitted neatly around the camera, each in individual compartments. Salon print cases for shipping, carrying or storing are available in three sizes—16½x20½", 1, 2 and 3" in depth, prices from $3.90 to $5.10. The meter cases are designed to be worn at the belt and are so constructed that they prevent wrinkling of the vest. Price $1.75. Write the above address for complete details.

Keeping pace with the industry's growth, Burleigh Brooks, Inc., has moved its entire business to more modern headquarters at 126 West 42nd Street, New York. This is directly opposite its former location at 127 West 42nd Street. The new offices, to be occupied March 1st, cover an entire floor of the building.

Photographic I. C. Answers to What Is Your

1. Pyro. It is of organic or vegetable origin, generally made from nutgalls found on a certain oak that grows in China. These nutgalls are enlarged growths on the tender stems of the tree, resulting from the sting of an insect which lays its egg in the stem.

2. The collodian plate preceded the gelatin dry plate. The former was used for about twenty years before it became obsolete with the introduction of the gelatin plate by Maddox in 1871. The albumen plate was the successor of the calotype; the collodian the successor of the albumen.

3. It was safer. Nitrate film (celluloid) was very inflammable and in burning gave off poisonous fumes. Cellulose acetate film (safety film) burns slowly and its fumes are non-poisonous.

4. Daguerre was one of the originators of the diorama. It is a spectacular sort of panoramic painting in which the third dimension and unusual lighting effects are utilized to gain a realistic effect.

5. Tan. Upon the first signs of oxidation, metol will change in color from white to tan.

6. One fourth the area. The 8 mm. frame is one half the width of the 16 mm. frame and therefore is only half its height. Considering this it can readily be seen why the 8 mm. frame is only one fourth the area of a 16 mm. one.

7. Pola-screen. In an ordinary beam of light the vibrations travel in all directions. By using a pola-screen, however, they are restricted to a single direction. This is done by passing light through certain crystalline substances that have the unique property of transmitting these vibrations in only one direction to the exclusion of all others.

8. No shutter is employed in making exposures of one-millionth of a second. The extremely brief exposure is obtained by means of a device known as a stroboscope which makes an intensely bright light or flash. The duration of this flash is unbelievably brief, and is subject to control. Either single or multiple flashes at known intervals may be obtained.

9. Photo-sensitive material. When light hits photo-sensitive material it produces an almost intangible activation the nature of which is not exactly known. This is called the latent image. By a developing process the latent image is made visible to the eye.

10. Sensitometry. Hurter and Driffield established the basis for modern sensitometry, and made one of the earliest attempts to arrive at a system of rating emulsion speeds (1890). Today their system is popularly known as the H and D rating.

CAMERA CRAFT

SAN FRANCISCO
PUBLIC LIBRARY
PERIODICAL DEPT.

"Banana Tree" — *Rex Hardy, Jr.*

1940 PRICE 25c

PHOTOGRAPHER AND THE MODEL . A. & D. Bernsohn
ULATING WITH THE SPECTRUM . Nowell Ward, A.R.P.S.
H OF FIELD . . . . . Vance Johnson

F. F. Lockwood '40

NUMEROUS FORMER STUDENTS OF THE MORTENSEN SCHOOL OF PHOTOGRAPHY HAVE TURNED WITH NOTABLE SUCCESS TO THE SPECIALIZED FIELD OF CHILD PORTRAITURE.

MORTENSEN SCHOOL OF PHOTOGRAPHY

LAGUNA BEACH CALIFORNIA

"Ballerina" *Robert Zevallas, Detroit, Mich.*

1940 Kodak Exhibit

The Photographer And The Model

Al and DeVera Bernsohn

Part I

THEY were questions we've all sought to answer at one time or another: How do professional photographers make their models look glamorous? So very full of life? What technique lies behind those beautifully draped fashion shots? How are the pose and expression of the model selected and controlled?

Gordon Coster, Chicago photographer well known for his exquisite fashion portraits and his dramatized illustrations, supplied us with some of the answers.

"Let the model feel that she is carrying the ball," he suggests. "Your control over her is indirect. She should feel poised, confident that she is the most important person involved in the making of the picture."

Psychological tricks are his forte.

Look in any one direction long enough, while a camera is trained on you, and you assume a wooden, uninteresting expression, as obviously posed as a foreign propaganda photograph. See a new field of vision and, no matter how intent you are on posing, there will be the brief interval it takes to become accustomed to the new setting during which the face will not have become locked in any particular expression and will remain mobile and natural looking. The girl in Fig. 1 did not know she would be asked to look over her left shoulder until the last minute before the picture was taken.

Coster frequently utilizes this human trait by deliberately posing the model facing in a direction other than that in which she is to look at the time the picture is taken. Once everything is ready for the actual exposure, he asks her to turn her head to the new direction. The exposure is made quickly. The result is usually a natural, intent expression.

Figure 2 *Gordon Coster*

This sharp change of pace should not break the uniform sequence of the work being done. Coster maintains a steady flow of calm, deliberate action throughout the taking of the picture. He is extremely leisurely in setting up equipment and maintains a steady, often lively, conversation with the model so that she feels no reason to be strained or tense. The pictures are taken without much fuss and without distracting the model. Usually several are taken in succession, with possibly a few apparent exposures being faked to help the model feel at ease by giving her the impression that no single exposure is of major importance.

She may resent the analogy, but a model is much like a horse taking jumps. If given a loose, free rein during the jumps, the horse will continue to try at them, but if the rider jerks the reins just before the take-off, he hurts the horse and for the rest of the day has trouble persuading it to leave the ground.

A model who is encouraged and told that she is in great form and that the photographer would like a few more negatives while she is so highly photogenic, will be poised, relaxed, self-confident, throughout the taking of her picture. No matter how awkward the pose, she should be told that it is not bad, but possibly it would be *even better* if she made the changes the photographer suggests.

Models become stiff and forced from trying too hard if they are told that they have spoiled some particular shot, or that the photographer had been working for some time and he hadn't secured a satisfactory exposure

Figure 1 *Gordon Coster*

Figure 3 *Gordon Coster*

Figure 5 *Gordon Coster*

yet. Models may usually be *persuaded* to assume the right positions and expressions.

Frequently the model will be able to suggest a pose or bit of action from which the photographer may benefit. She's been studying her own physiognomy and physique far longer than he has and she knows which poses and gestures are most naturally hers.

She should never be asked to assume a pose that does not come naturally to her. Unnatural poses are seldom graceful. But, whether the pose comes naturally or not, the model should not be expected to assume it for a prolonged period of time. Most photographs are more interesting when they depict action, and little action remains in the position of a person who has been immobile for a half minute or so.

Therefore Coster ordinarily asks the model to assume only approximately the pose she is to hold in the final exposure during preliminary adjustment of lighting, background, costume and camera. Just before the picture is taken she shifts her position to the one the photographer wishes. Often quite extreme contrasts are employed between the posing position and that in which the picture is taken (Fig. II).

Action caught before it has a chance to set is an excellent method of combatting the fact that every pose is unnatural to the extent that no model can completely disregard the camera, properties, lighting and photographer's presence. Action is stopped nicely in Fig. III, which was taken in mid-winter. While the girls shivered in their heavy coats, snow was cleared from the space included in the picture. At a signal from Coster they shed their coats, hopped into their poses, and he clicked the picture with a Leica.

This also illustrates the value of depicting conflict in the picture. The

Figure 4 *Gordon Coster*

wall is an object obstructing the view of the girls. Their conquering the obstacle makes a picture.

While such resistance or opposition is not always used in a picture, its suggestion or evidence of its existence is found in a very high percentage of illustrations. The happy, bewildered newlyweds just leaving church may be pretty well staged, as they pose ducking rice, but the photographer

Figure 8

Gordon Coster

ean make this pose and expression far more real by throwing rice at the eouple.

An eleetrie fan often simulates wind and represents the opposition in studio pictures. Fig. IV is materially aided by a fan slightly blowing the hair of the dogs and the slacks of the model. Also the rush of air to the girl's face has caused her to brace herself a little more naturally and to have a lively, genuine expression.

For poses not intended to depiet aetion, the model is better grounded if she has something against whieh she can lean or on whieh she ean sit. This gives her position more plausibility by explaining its set appearance. If her attention is sharply foeused, this sort of pose ean indicate life and latent action almost as well as one showing the model in aetual motion. Figs. V and VI.

The direction in which the model leans is an important faetor in determining whether she is to appear abstraet and eold or intimate and vital. Fig. VII shows the same model as that in Fig. VI posed in such a manner that she represents an entirely different type of person, simply by use of a perfeetly controlled expression and a pose showing the model leaning away from the direction in which she is looking.

In striking eontrast to this is Coster's amusing, Panda-like fashion pieture, Fig. VIII. Try posing in these two positions and see for yourself the psychological effect of the pose on the model. She feels the part. She *is* the part.

These effects are attained through the photographer's use of common sense and subtle suggestions.

Figure 6 *Gordon Coster*

Figure 7 *Gordon Coster*

Depth Of Field

Vance Johnson

WHAT IS "DEPTH OF FIELD?" Why does "depth of field" increase when a lens is stopped down? Why does a miniature camera have greater "depth of field" than a larger camera?

It is the purpose of this article to answer these questions, and a few others on the same subject, without getting mixed up in a lot of mathematics and complicated optical theory. A recently developed depth of field diagram which gives the answers to all common depth of field problems is provided, and the use of the diagram is explained.

If one expects to get the best possible performance out of an automobile, a piano, or a camera, it is a good idea to have at least a general idea of what the insides look like and what makes the thing work. Of course, there are lots of people that get nice pictures right along and don't have time to worry about depth of field. But for one to know exactly what he can expect from his camera under varying conditions, and especially in regard to depth of field, he must understand the simple principles that make a picture. Before diving into the discussion on depth of field, the simple optical principles involved will be briefly reviewed.

Fig. 1 is the standard physics book drawing for the explanation of the camera. All of the camera has been removed from the drawing except the lens and the film. The tree at the right is the object being photographed. "A" is a point on the top of the tree. If the point is light in color, part of the sun's light is reflected in all directions. Some of it is reflected in the direction of the camera. The light so reflected is represented in the drawing by the straight lines, called "rays" radiating from point "A." All of these rays that fall upon the lens are bent, upon passing through the glass surfaces, so that they come together at the point "a," known as the "focus." This affects the film at this point in proportion to the intensity of the light. If the point "A" had been on a flat black surface, no light would have been reflected from it and there would have been no light delivered by the lens to point "a" to affect the film. Point "B" is photographed in the same way. The lens picks up the light reflected in its direction from point "B" and

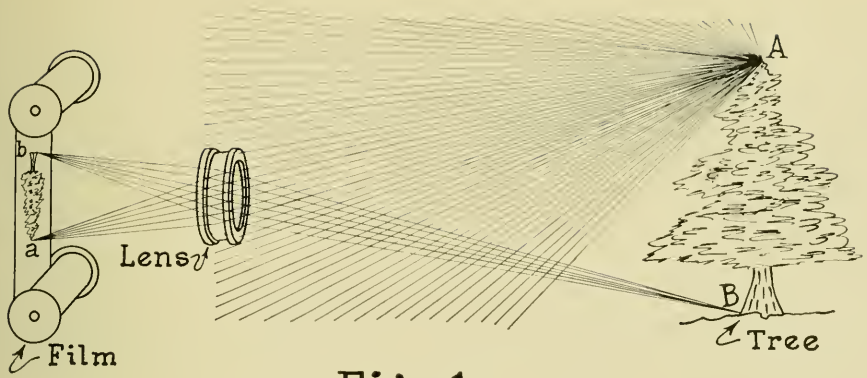


Fig. 1.

directs it all to point "b" on the film. Each point in the picture is photographed in the same way, independently of the other points. Points at the top of the view are recorded at the bottom of the film, while points at the bottom of the view are recorded at the top of the film. The right hand side of the view is recorded on the left hand side of the film and the left hand side of the view is recorded on the right hand side of the film. The picture is recorded upside down on the film, but each point in the view has a definite position on the film. If we could examine a finished print under a microscope, looking at little circles the size of a pin point, one at a time, we would find it to be built up just of a lot of black, white, or grey points, all put into the picture independently of one another like points "a" and "b" in Fig. 1. In the sketches and discussion that follow, only one, two, or three points will be shown or mentioned. We select a few points as samples to study, and avoid the confusion of attempting to study all the points at once.

The focal length of a lens (F) is defined as the distance from the "optical center" of the lens (some place in about the middle of the lens barrel for our purposes) to the film, when the camera is focused on "infinity." Infinity can be assumed as anywhere beyond about five hundred feet. See the upper part of Fig. 2 for a sketch that explains focal length. This is the position of our lens with relation to the film when sharply focused upon any distant object (or infinity).

We know that if we want to take a picture of a near object, and have sharp focus, we must increase the distance from the lens to the film by adjusting the focusing device on the camera.* See the lower part of Fig. 2. Rays coming in from the near object point "B" are divergent, not parallel like the rays from distant point "A." The lens bends these rays the same amount as the parallel rays from "A," but since they were divergent before reaching the lens, the cone formed inside the camera is longer and they do not meet at "a," but at "b." The distance from "a" to "b" or the distance

*In some cameras focusing is accomplished by varying the distance between the lens elements. This changes the focal length of the lens and the effects can be considered identical with focusing in the conventional way. There is no such thing as a camera of "universal focus." The proper description is "fixed focus." Such cameras are of short focal length and small aperture, with the focus set at the factory for a definite distance, such that most of the pictures will not be far enough "out of focus" to be objectionable to a novice. Such cameras are not intended for serious work, but it must be admitted that some of them produce excellent pictures under the proper conditions.

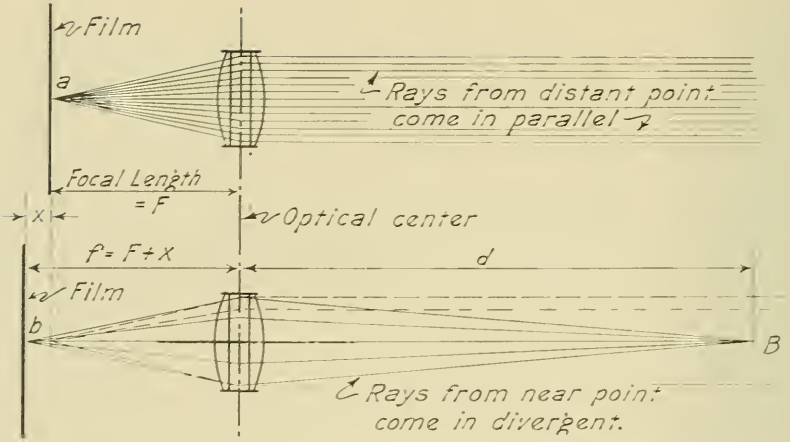


Fig. 2.

"x" in the sketch is the distance the lens must be advanced with the focusing device, from the infinity position, to bring point "B" into exact focus. The closer point "B" is to the camera, the greater is this distance "x." The distance "x" is also greater with the longer focal length lenses, varying roughly as the square of the focal length. A few figures will be listed to clarify these statements:

FOCAL LENGTH OF LENS	DISTANCE	X
2 inches	100 ft.	.003 inches
4 "	"	.013 "
8 "	"	.054 "
2 "	10 ft.	.034 "
4 "	"	.138 "
8 "	"	.571 "

For one who is not familiar with all of the foregoing, some experimenting with a camera with ground glass focusing, without the necessity of actually taking any pictures, would be found helpful in fixing the principles in mind.

Disc of Confusion and Depth of Field:

If it were possible when taking a picture, to always have the camera set so all the points in the picture would be in exact focus, we would not have to worry much about disc of confusion, nor any at all about depth of field. This condition is sometimes realized in views taken from airplanes or from mountain tops, and approached frequently under other conditions. But in the average picture of pictorial merit we have objects that are near and other objects that are far, and most photographers prefer to have all of the material in sharp focus in most of their pictures. If it is desired to have the background (or foreground) out of focus for pictorial reasons,

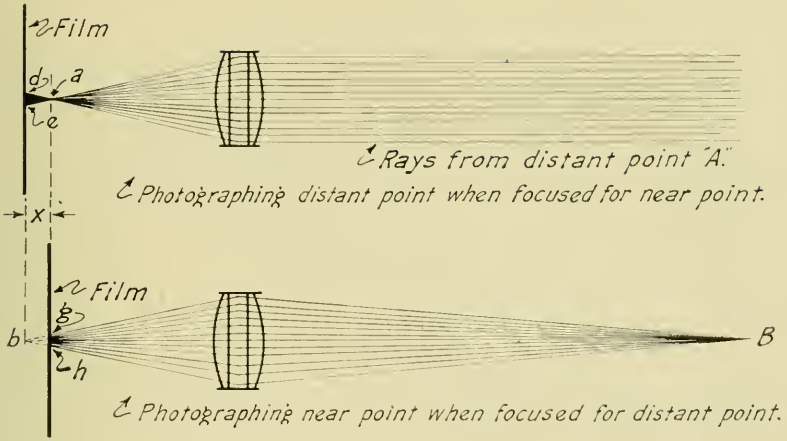


Fig. 3.

then it is an advantage to understand the principles by which this effect can be deliberately produced.

Fig. 3 is a sketch showing what is meant by "disc of confusion." In the upper part of this figure, the camera has been set to take a picture of a near point, but the point being photographed is distant. The rays fall upon the lens and are brought to a focus at point "a," exactly as in the upper part of Fig. 2. But in this case the film is not at "a," so the rays cross through the point and continue in their straight paths, forming a little cone, and finally reach the film spread all over a little circle with diameter equal to the distance from "d" to "e." This circle is known as the "disc of confusion." If the distance from "d" to "e," or the diameter of the circle, is 1/500 inch, then it is known as a "disc of confusion of 1/500 inch." The lower part of Fig. 3 shows how the same effect can be produced by having the camera focused for a distant point when taking a picture of a near point, producing a disc of confusion of diameter equal to the distance from "g" to "h." It will be seen that the size of the disc in either of the above cases will vary as the distance from the focal point "a" or "b" to the film surface. If it so happens that the disc is 1/100 inch and the distance from the focus point "a" to the film is 1/16 inch, then the disc size will double to 1/50 inch if we double the distance from "a" to the film to 1/8 inch. The disc is about the same size with the film an equal distance behind of "a" or in front of "b." Another way of stating it is that the size of the disc of confusion is very nearly proportional to the actual distance the lens is set, forward or backward, from the proper position required to bring the point to an exact focus on the film. (Divide the distance by the f-stop number for the diameter of the disc.) This effect can be seen very plainly by focusing a camera with ground glass on a bright star or a distant street light.

As stated previously, a photograph is simply a composite picture of

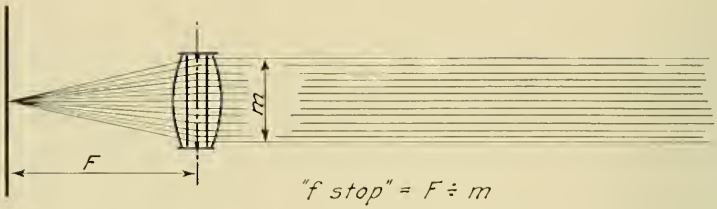


Fig. 4.

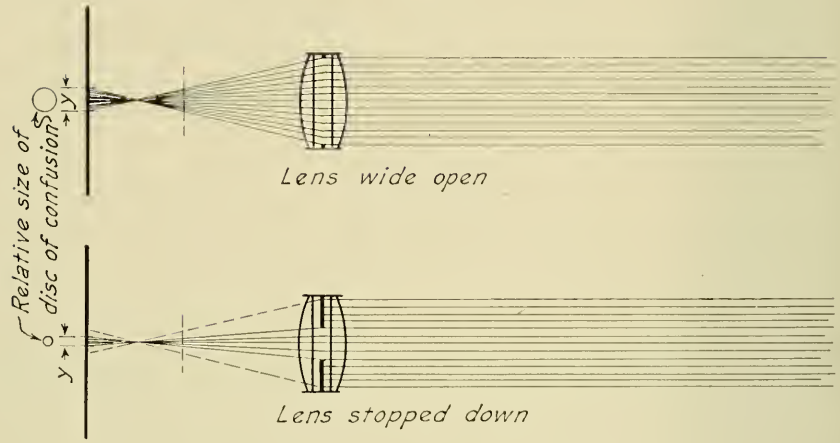


Fig. 5.

innumerable points, each having registered its light upon the film independently of the other points. If it happens that the camera is not set at the proper focus for part of the picture, then the innumerable points in this part of the view do not affect the film as points, but each affects a little circle (disc of confusion) on the film. All of these little circles overlap one another, and the part of the picture so affected has a "fuzzy" appearance and the fine detail is obscured. *The degree to which this effect will be noticeable in a finished picture can be foretold if the size of the disc of confusion for one point is known.*

The size of the disc of confusion can be controlled by varying the aperture. "Aperture" is also known as "stop," "lens speed," and possibly a few other terms. Anyway, most good lenses are equipped with an adjustable gadget called the "iris diaphragm" that regulates the size of the hole inside the lens where the light goes through. The stops on modern cameras are graduated in the "f-stop" system. The "f-value" is defined as the focal length of the lens divided by the diameter of the column of rays from a distant point that pass through the lens and come to a focus. See Fig. 4. The stop is "F" divided by "m." A few examples are given:

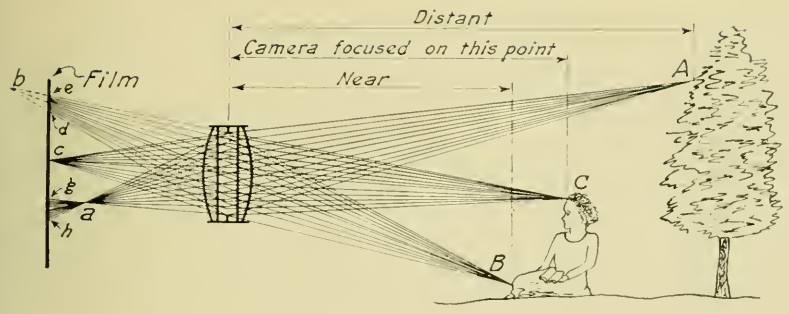


Fig. 6.

FOCAL LENGTH	M	F-STOP
2 inches	1.33 inches	1.5
" "	1.00 "	2.0
" "	0.71 "	2.8
" "	0.57 "	3.5
8¼ "	2.36 "	3.5
" "	1.83 "	4.5
" "	1.31 "	6.3

The numerically smallest f-stop, or largest aperture, at which a lens will operate, is known as the "speed" of the lens. The aperture settings on most of the modern cameras are marked in f-values of 2.0, 2.8, 4.0, 5.6, 8, 11, 16, 22, and 32. Some cameras are marked 3.2, 4.5, 6.3, 9, 12.5, and 18. In either case, the *area* of each stop in the series is twice as great as the *next* following, and the *diameter* of each stop is twice as great as that of the *second* following.

Fig. 5 shows how the diameter of the disc of confusion can be reduced by using a smaller stop. It will be seen that the size of the disc is directly proportional to the size of the aperture, "m," and therefore inversely proportional to the f-stop number. An example is given for a camera of eight inch focal length. The camera is set for exact focus at fifty feet, but the point being photographed is distant.

F-STOP	DIAMETER OF DISC OF CONFUSION
4.5	0.024 inches
11	0.010 "
22	0.005 "

Depth of field is defined as the maximum and minimum distances, with the camera focused exactly upon a definite intermediate distance, at which points will photograph without a disc of confusion of objectionable size. This "objectionable size" has not been standardized and varies with different authors of depth of field tables. Unfortunately, most tables do not state upon what size disc of confusion they are based. A German manufacturer of one of the very finest miniature cameras furnishes with each

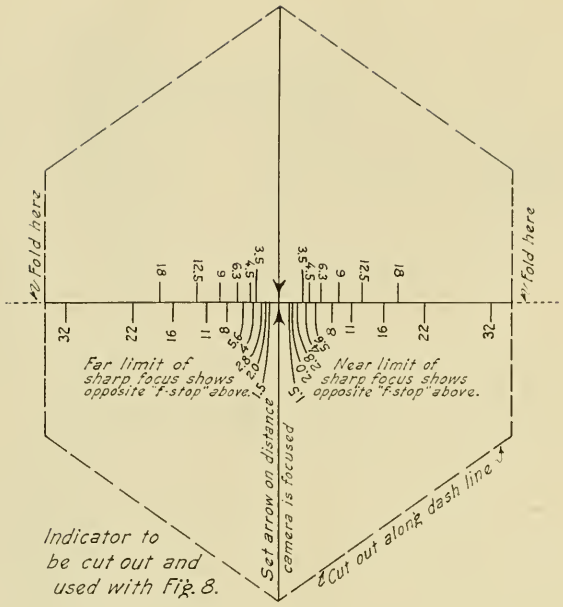
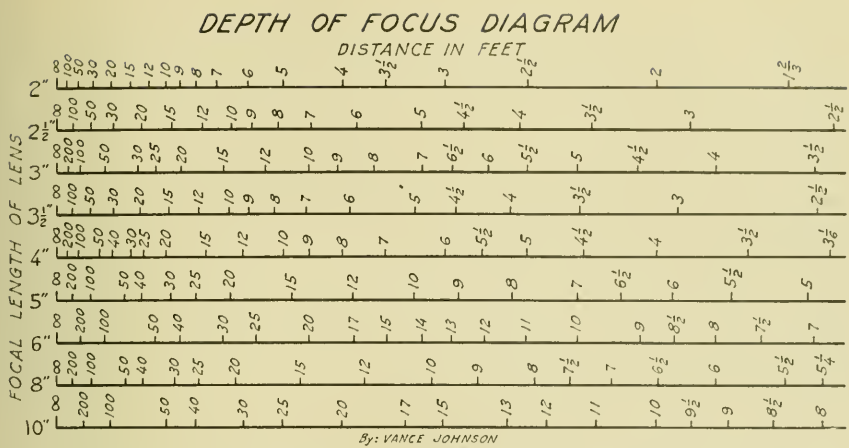

Fold here
Fold here
Far limit of sharp focus shows opposite "f-stop" above.
Near limit of sharp focus shows opposite "f-stop" above.
Set arrow on distance camera is focused
Cut out along dash line
Indicator to be cut out and used with Fig. 8.

Fig. 7

camera a set of tables showing depth of field for a 1/500 inch disc and also for a 1/750 inch disc. The use of the larger disc is stated to be satisfactory for all except the most exacting work, and the focusing ring of the camera has a depth of field scale based upon the larger disc. However, we find a domestic miniature camera in the low price group accompanied by a table based upon a 1/750 inch disc, while one of our best reflecting miniatures has a table based upon a disc of about 1/300. There is no apparent reason for these differences. However, if the size of the disc upon which the table is based is known, it is a simple matter to move two stops one way or the other to arrive at a disc of half the diameter or twice the diameter of the one upon which the table is based, as shown in the discussion of Fig. 5.

Fig. 6 shows how depth of field depends upon the size of the disc of confusion, which can be controlled by the "stop." The camera is focused exactly upon the intermediate point "C" and the rays from this point are brought together at point "c" on the film. But the rays from the more distant point "A" are brought to a focus at "a," which lies in front of the film. They continue through this point and spread over the disc "d-e" on the film. The rays from the near point "B" reach the film spread all over the disc "g-h" before coming to a focus. The size of these discs can be controlled by the stop as shown in the discussion of Fig. 5. With the proper use of a depth of field table or the depth of field scale incorporated in the focusing device on some cameras we can tell the far and near limits of sharp focus for a given lens, if only the stop and the distance setting are known.

Fig. 7 and Fig. 8 furnish a convenient method of finding the depth of field for any distance and aperture for all common lenses of hand camera size. Figure 7 should be cut out and folded on the line indicated. It may



This diagram is based upon a disc of confusion of:
1/500 in. for 2", 2½" & 3" lenses.
1/250 in. for 3½", 4", 5", & 6" lenses.
1/100 in. for 8" & 10" lenses.

Directions: Select line for focal length of lens, shown at left. Place edge of indicator (cut out of Fig. 7) on line with center line at the distance for which camera is exactly focused. Read far and near limits of sharp focus on distance line opposite "f-stop" on left and right sides of indicator.

Fig. 8.

be pasted around the edge of a piece of cardboard for convenience. One side is graduated in stops of 1.5, 2.0, 2.8, 4, 5.6, 8, 11, 16, 22, and 32; while the other side is marked 4.5, 6.3, 9, 12.5, and 18. Use whichever side corresponds to the markings on your camera. Fig. 8 is arranged with a different line for each focal length lens. The focal length in inches is shown at the left end of each line. Always use the line marked with the focal length of the lens being used. If none of the lines corresponds closely to the focal length of the lens, then use the line marked with the next larger figure to be on the safe side. When the indicator (Fig. 7) is placed with its folded edge along the line and the arrow at the center even with the distance for which the camera is exactly focused, then the far and near limits of sharp focus will be found on the diagram opposite the numbers on the left and right sides of the indicator corresponding to the f-stops used.

The diagram is based upon the following sizes of disc of confusion:

1/500 inch: Lenses of 2, 2½, and 3 inch focal length.

1/250 inch: Lenses of 3½, 4, 5, and 6 inch focal length.

1/100 inch: Lenses of 8 and 10 inch focal length.

There are reasons for using different size discs. The focusing is so critical with the longer focal length lenses at close distances that it is not practical to try to work with an extremely small disc. Very small negatives are usually enlarged a greater number of times than larger negatives. Except for telephoto lenses, the longer focal length lenses are usually associated with larger negatives. Since a disc of 1/500 inch enlarged ten times is the same degree of confusion as a disc of 1/250 inch enlarged five times, it seems reasonable to increase the size of the disc with the longer focal lengths. However, if the disc sizes upon which the diagrams are based are not desirable for any special case, it is a simple matter to work with discs of other sizes if one will keep in mind that the diameter of the disc is proportional

to the size of the aperture, or inversely proportional to the f-stop number. To arrive at discs of 1/200 inch with a lens of 10 inch focal length, simply use an f-stop two stops numerically larger than the one indicated by the diagram. Example: If the diagram shows f:11, then use the second stop numerically larger, or f:22.

There are several types of depth of field problems that arise. Typical solutions with the accompanying diagram will be shown:

CASE 1

Focal length of lens 3 inches. Focusing device set for 20 ft. Stop 5.6. What is the depth of field? . . . Solution: Use the 3 inch lens line. Set the arrow at the 20 mark. Over 5.6 on the left side of indicator read 27 ft., and over 5.6 on the right side of indicator read 16 ft. Objects between 16 ft. and 27 ft. from the camera are in sharp focus.

CASE 2

A landscape with a lens of 2 inch focal length, stop 11. At what distance should the camera be set to show distant objects sharply and at the same time bring out the close foreground as sharply as possible? . . . Solution: Use the 2 inch lens line. Set the f:11 mark on the left hand side of the indicator at the infinity mark, extreme left end of lens line. Opposite arrow read distance of 15 ft., for which camera should be set. It can be seen above the f:11 mark on the right hand side of the indicator that objects as close as 8 ft. will be in sharp focus.

CASE 3

A commercial view of an interior. Nearest furniture showing in picture is eight feet. Farthest corner of room is twenty-five feet. Focal length of lens 4 inches. What is the fastest stop that can be used and have all parts of the picture sharp, and for what distance should the camera be set? . . . Solution: Use the 4 inch lens line. Set the arrow about half way between 8 ft. and 25 ft., and move to right or left as necessary to make the same f-stop on left and right sides of indicator appear under 8 ft. and 25 ft. on lens line. This is found to be f:16, which is the stop to use, and the arrow is on 12 ft., for which distance the camera should be set. But the diagram is based upon a disc of 1/250 inch, and perhaps we would like to hold to a disc of 1/500 inch for this picture. Then we use f:32, the second smaller diameter, or numerically larger, stop.

CASE 4

A camera of 2 inch focal length is focused exactly upon a subject at a distance of five feet, stop at f:2.0. What degree of confusion can be expected in the distant background? . . . Solution: Use the 2 inch lens line. Set the arrow of the indicator at the 5 ft. mark. Opposite the infinity mark at left end of lens line we find a stop of about 32, which would produce a disc of 1/500. But we are using a stop sixteen times the diameter of f:32 stop, so our disc will be 16 times 1/500, or .032 inch.

If the negatives are to be projected to prints of the same size, the degree of confusion in the prints is determined by the diameter of the aperture used, and is independent of the focal length of the lens. For instance, a 2 inch lens stopped at f:2 will produce a print of the same confusion as a 4 inch lens stopped at f:4 or an 8 inch lens stopped at f:8. This rule is very nearly mathematically exact except for the shorter distances. It is practical for hand cameras down to five or six feet, possibly less.

Speculating With The Spectrum

Nowell Ward, A. R. P. S.

AS WE ENTER our favorite cinema and see over the marquee the sign "In Technicolor" we know of course what to expect. But, being a little blasé about our movies today, we are prone to take the modern perfection of photographic color too much for granted. It does look so simple, doesn't it? And so you say to yourself, as you take your camera loaded with Kodachrome, Dufay or what have you, into the open the following day, "Ah, here is color . . . and beauty. What is there to stop me?"

Just a thought or two, that is all. And these mental stoppers are just the ones to spell the difference between good color work and bad. For, back of the feast in color you enjoyed the night before, stands a long line of men who worked hard and long to get the easy-on-the-eye color harmonies you gazed at with such nonchalance. In fact, some of these color artists know more about color and color harmonies than the old master Sol himself . . . who started the whole thing, I believe. If, therefore, you are experimenting with color photography, you can study with *both* Man and Sun, for their recordings are as an open book to all with the will and mind to read.

To the uninformed, such study may seem unnecessary; that to know the simple formula (color is light and light is color) is sufficient, but I assure you it is not that easy.

Successful color photography can never be assured without knowledge of the principles of light, color and the color complementaries, for haste surely makes waste in this thrilling work unless such information is at one's disposal. We therefore admonish, but gently, the amateur who has succeeded in the dark past of black and white not to approach with too much cock-sureness this newer medium. Many of you are bound to discover, and with a shock, that a beautiful setting of nature refuses to "take" in color as expected. Nature doesn't often make mistakes, but YOU will. Sounds

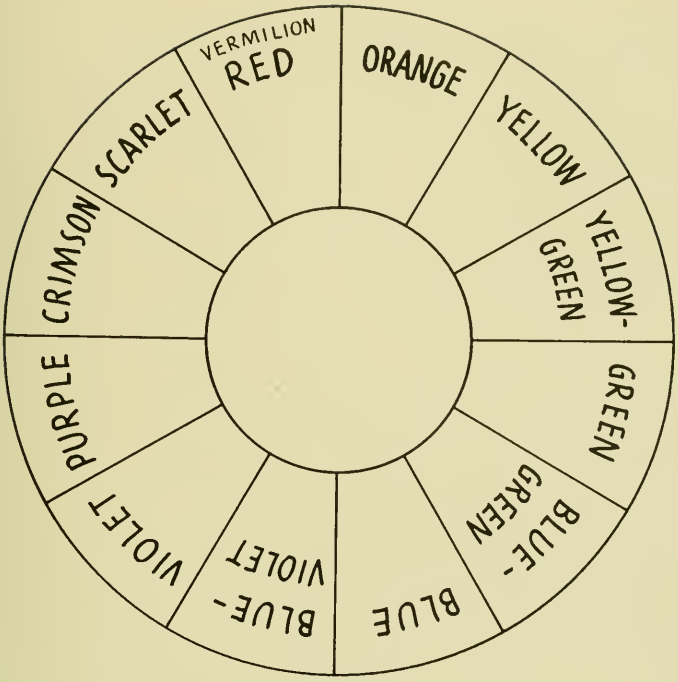
like a threat or a bad-luck-to-ye, but as I propose to follow through with a few *do's* and *don'ts* you will learn (I hope) that a word of caution is my only intent, and one well meant. It is quite natural for us to think that good color photography depends mostly upon correct exposure and accurate processing, that "that's all there is, there isn't any more" as one of our noted actresses once said. Wrong again. There is a lot more to it, even more than Horatio at his dreaming best might have idly imagined, so if you are a stranger in this field it will be well for you to welcome any pause for learning that may come your way.

At the very outset in order to produce color photography rich in vivid coloring and pleasing to the eye, a knowledge and regard for nature's specific law of complementary colors is of first importance.

There are two different color spectrums; one applies to light and the other to pigments, dyes, etc. Your study of color must therefore include both light and color. In light (daylight) the complementary colors are those which when blended produce white light and they are known as red, green and violet. According to Helmholtz these are French vermilion, emeral green, and spectrum violet. Also called the solar spectrum, and the three spectrum primaries.

In the color, or pigment spectrum, the complementary colors are those which when blended neutralize and print black. These colors are crimson, yellow and blue, and are called the three pigment primaries. To illustrate: The painter when mixing his palette will usually (if he is using a certain pigment and wishes to produce its complementary) mix a small amount of the color he *believes* to be correct with the pigment. If the result of this blending of the two colors is gray, then he knows for a certainty he has found the true complementary. Now what has all this to do with making a picture in color, you ask? Simply this. If you are trained to see and understand color balance, and you know what colors go well or "keep company" with each other, and *why* they do, the results cannot help but be pleasing. The uninitiated may not know just why he likes your color work, but you do, because you know it is because you applied the law of the complementary color cycle, a law as adamant as the proverbial immovable object. The actual reason then for the gratifying color photograph is based on science, and may therefore be explained to the admirer of your work in the following manner: If he were asked to mix all the colors in the photograph together the result would be gray. Or another test would be to place the color picture on a revolving disc and spin it rapidly. The eye would still get the impression of gray. But if, instead of the gray, the eye were to see a blur of violet, yellow or any other color while the disc was spinning, it would prove the colors were lacking in correct balance.

Here at this point I would like to suggest that you look at the accompanying color chart. I have purposely made this simple and practical in order that the new dabbler in color will meet with as few complexities as possible, consistent with his first study of color harmonies and complementaries. This chart, if you study it carefully, should help you decide your color combinations the next time you plan a color subject. And worry over the correct complementary will vanish if you choose to remember that the proper complementary is any one of the three primaries complementary to the other two, when such two are in combination. Explanation: Yellow is



Color Chart

always a complementary of violet because these two colors combined contain the three colors of the spectrum, crimson, blue and yellow. (The combination of crimson and blue making the violet.)

Nature is exceedingly lavish in the variety of color schemes she gives us, but man, in his efforts to record her "color-ways," is ever at the mercy of the none too accurate mechanics of pigments, dyes and printing inks. And so it is, perhaps, just as well that some artists do not, and can not, photograph as they see, not only because of these material limitations, but also because of the marked differences in degrees of artistic sense. . . . There are some "artists" and we are stretching a bit now, in order to take in the whole field, who think any color picture is good, if it happens to be chuck full of bright, "raw" color regardless of what the colors may be.

Thus we have been flooded during the past few years with some perfectly atrocious examples of bad color work. Which makes it imperative, we think, that both *right* and *wrong* color combinations should be learned, that the first may be used and the second avoided. The painter must know his pigments if he craves self-expression on canvas; the interior decorator must understand color harmonies and light effects before he can do a good job, and so, too, must the color photographer browse around a certain tree of knowledge if he wants to make good, be his aim cash or glory.

It should, however, be a little heartening for the beginner to know that some license is permitted in color work and allowed by the critics who now advocate that the ability to get an exact duplicate in colors is not as important as it is to get a correct color *impression* of the subject photographed, and the reason for this attitude is because of a certain other law (which

even the critics must know, or they wouldn't be representative of their name) whereby every color is affected by the color next to it. A very good example of this immutable rule is demonstrated by the great intensity of the accent on lemon yellow when it is used against a background of violet, its complementary. The same rule applies to all complementary colors when used in the same manner. You might try experimenting with this idea a little before you attempt serious color work, as the so-called complementaries, if not understood, have a wicked way of proving themselves most *uncomplimentary* to the picture if you don't watch out. Remember, too, that neutrals have a way of their own, a pleasing and satisfying one to the eye, when used in combination with a harmonious color scheme.

Therefore, and before you start shooting, have a harmonious color plan in mind, avoiding as you would the plague, that common mistake of hogging all the colors in the spectrum into your first picture—even if they are nature's best—because—well, it isn't cricket, that's all.

As a suggestion, and assuming your first subject is a young woman in, shall we say, a yellow-green gown; you will observe on the color chart that purple is complementary to yellow-green. You will therefore not hesitate to plan your background in red and violet (which constitute purple). There's nothing to stop you from adding a touch of yellow green in the background, or adding an accent of purple to the lady's gown, if you wish. This same plan may be worked out anywhere around the color chart, for, as explained under the diagram, all colors opposite each other are complementary to each other. It is a very good idea, however, to vary the proportions of these complementary colors, because when in too equal proportions, they easily become monotonous. One color can definitely dominate, then a small amount of its complementary will be accentuated all the more by contrast.

One constantly hears in color work, the reference to cool and warm colors. At one end of the spectrum we have the cool colors, such as blue-violet, gradually warming to the shades of red, which are the warmest. These colors have different wave lengths; blue-violet the shortest, red the longest, all within the range of the human eye. Beyond these, and unperceivable, are the ultra-violet and the infra-red rays.

There is no such thing as color, as we perceive it. A red carnation is not actually red. Its color sensation depends upon the quality of light shining on it and the degree to which it reflects or absorbs that light. A flower is known as red if it reflects the red rays and absorbs the others.

It is in the actual recording, however, that the value of a color plays the hero, or the villain, role. Value means the lightness or darkness of a color. When it is lighter than the normal color, we call it a tint and when it is darker, we refer to it as a shade. Any color will appear stronger if printed against white, weaker against black, and when against a color near its own value, it will diminish very perceptibly.

There are few to doubt the supremacy of nature as a color harmonist, for on her palette are the three grand old primaries, with the sun as a mixer-factotum, but with man it is a case of now you see it (color) and now you don't. For the scientist tells us, although this is yet but a theory, that our

eyes have three sets of nerves, each one sensitive to a different color. This explains nicely, we believe, why some people are color-blind. However, we see white as reflection, and black as absence or absorption, regardless of minor eye defects. Whoever first said, "All cats are gray in the dark" meant that all cats are without color in the dark, because of the absence of light. When it comes to ease of visibility, orange is the foremost, being easier to see at a distant than red which, when remote, sometimes appears more grey than red. Consequently, orange labels instead of red are now being used by cautious pharmacists on vials containing poisonous ingredients. Also, some of the publishers are now using a tinge of yellow in their paper, for the reason that white, because it reflects all the light, is not as easy on the eyes for a steady diet, as either yellow or ivory.

There are some who believe that every color has a little meaning all its own. I wouldn't know. Not all of them, anyway, for lately there has come to my attention a report that horticulturists now have 3,000 different colors to define. And quoting from the same source, because of its interest to photographers, according to Mr. Wilson, Art Director of the British Color Council, the only pure colors in flowers (shall we call them flower primaries?) are the yellow of mimosa, the blue of gentian, and red of salvia. But regardless of any color chart, some future horticulturist may prepare, and because we humans are affected to some degree by color emotion, certain colors have come to be recognized as having definite meanings, such as red for war, passion or danger; orange for harvest or autumn; yellow, cowardice or sickness; green for freshness or newness; blue for serenity, coolness and truth; violet, sadness and sentiment; white, purity and sacrifice; black, despair, death and night, etc.

And so we think our first attempt to turn out a little masterpiece of kodachrome-painting is going to be very exciting, all things considered. So is your second attempt and your third. For, regardless of your ability to make a correctly exposed color transparency, or your skill in making a color print, if the colors you photograph lack harmony and balance, the result will be as displeasing to the eye as a discord in music is to the sensitive ear. As in music, an apt comparison in this instance, because music is ever limited to the instruments upon which it is played, we are in color photography confined to the limitations of the color spectrum, that second best, that echo, of the one and only, the incomparable solar spectrum.

So put down in your little notebook as a MUST study:

Light in relation to colors
Colors and their complementaries
Colors in relation to light

For it is only with a light brush that I have touched briefly on the important fundamentals of color in order to kindle your interest in the right direction.

Like the rainbow, the study of color has no end. The sky's the limit. And the application of color in photography is still new in the sense that many of its vast possibilities remain untried.

We are surrounded by color; in fact we ARE color, and, in relation to the universe, share with every living thing the light which gives us form and color, not excepting the lofty elm in the backyard, which knows nothing of light rules—or does it?

Filters Made Easy

H. C. Benedict, Ph. D.

Part II

Read my little fable:
He that runs may read.
Most can raise the flowers now,
For all have got the seed.

TENNYSON.

LAST month I had the temerity to differ strongly with a large group of writers who claim that no knowledge of the technical or scientific side of photography is necessary or even desirable. This claim is greatly to be deplored although I would be the first to admit that an obsession with technique to the exclusion of all else is equally deplorable. Some middle path must be followed for the best results.

I also discussed the theory and practical uses of the yellow filter and the conception of white light as consisting of a mixture of blue, green, and red lights. This is particularly helpful to an understanding of the whole subject under discussion and therefore a summary of the conclusions drawn last month is given in the following table:

Color of object or filter	*Reflects (for object) or transmits (for filter)*	*and absorbs*
White	blue, green, red	none
blue	blue	green and red
green	green and red	blue and red
red	green	blue and green
yellow	red	blue

Various shades, tints and intermediate colors are produced by the difference in the completeness with which the various colored lights are absorbed. For instance, a yellow filter, G, absorbs the blue almost completely.

The charts are drawn in such a way that the sensitivities, to different colors, of the eye and of the film can be directly compared. This also enables us to see how a filter can produce an effect more nearly like that of the eye by chopping off the excess light, light to which the film is more sensitive than the eye. I have not seen a direct comparison of eye and film

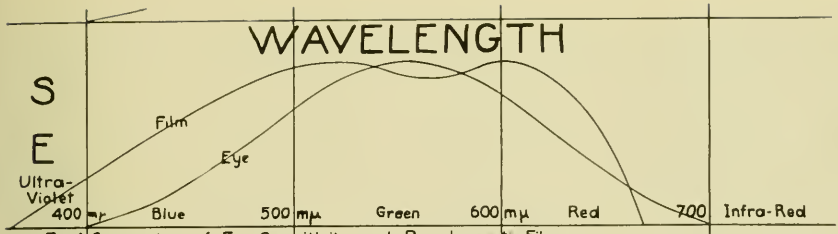


Fig. 1 Comparison of Eye Sensitivity and Panchromatic Film

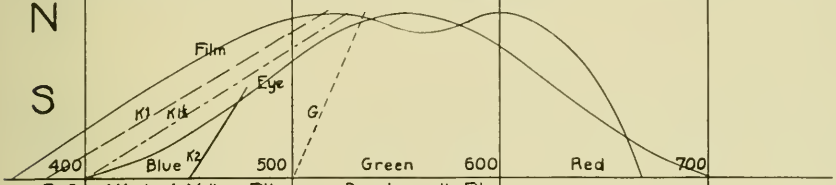


Fig. 2 Affect of Yellow Filters on Panchromatic Film

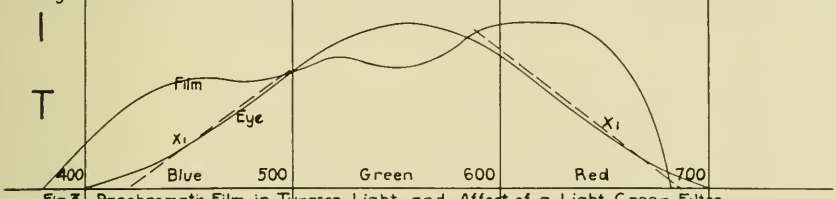


Fig. 3 Panchromatic Film in Tungsen Light and Affect of a Light Green Filter.

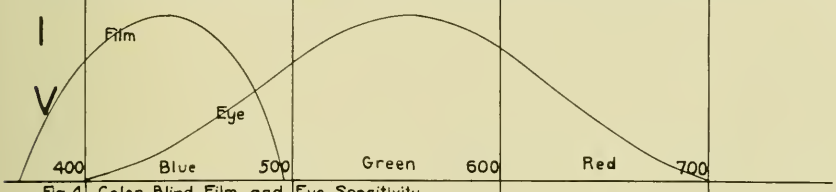


Fig. 4 Color Blind Film and Eye Sensitivity.

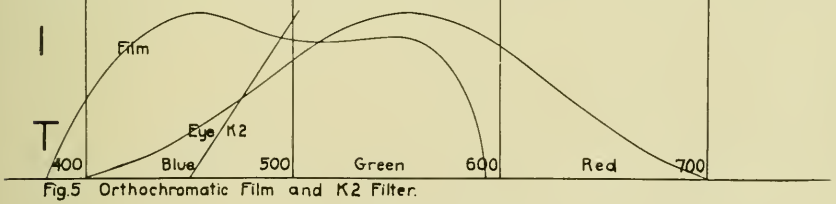


Fig. 5 Orthochromatic Film and K2 Filter.

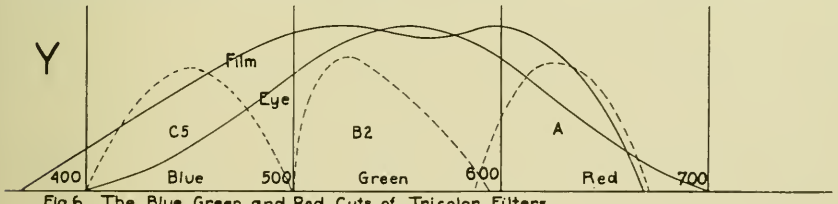


Fig. 6 The Blue, Green and Red Cuts of Tricolor Filters

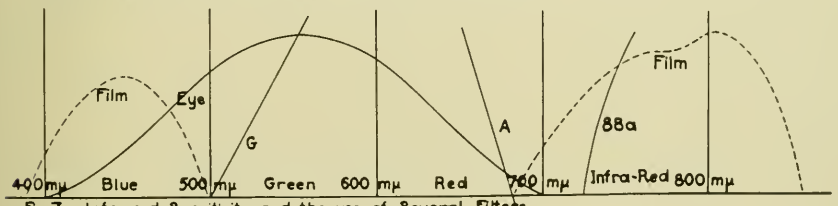


Fig. 7. Infra-red Sensitivity and the use of Several Filters.

sensitivity and as it is helpful in predicting the final result of a particular combination of film, filter and subject, it seems worth passing on to others. I hope you find it useful, too. Figure 1 compares the eye sensitivity with that of an ordinary panchromatic film and its most notable point is the markedly greater sensitivity of the film to the blue and ultra violet. This may be corrected to a greater or lesser extent by the use of yellow filters, almost perfect correction being attained by the use of a K-2 filter. (Fig. 2 and Figs. 8A-8B, 10A-10B.) However, when tungsten light is used, the result on the film is shown in Fig. 3, which brings us to the subject of:

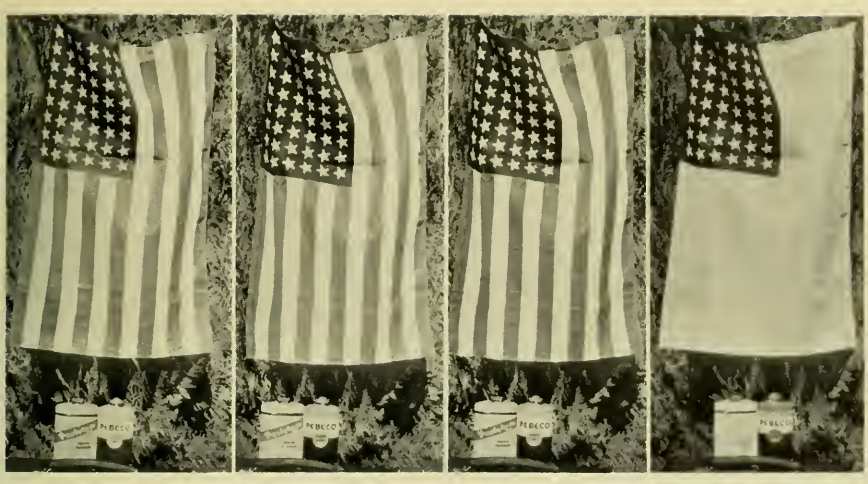
The Color of the Incident Light

Everyone knows that artificial light is not exactly like daylight, but he may not be sure wherein it differs. Any woman, picking out neckties, will take the necktie to the window or view it by some special light that more nearly duplicates daylight. Now the main difference between artificial and daylight is in the amount of blue present. The artificial light does not have as much blue as daylight; this is frequently interpreted in another way, which is just as correct and just as valuable; when it is said that the artificial light has proportionately more red in it than daylight. It may be well to correct a couple of misunderstandings about the use of blue colored lamps which are available for photography. First, the blue glass does not put blue into the light, it merely removes the extra red characteristic of tungsten lamps, balancing it more nearly to daylight quality. Their use theoretically makes it unnecessary to use a filter over the lens. Second, the blue glass does not make the light more actinic—does not allow shorter exposures, on the contrary, just like a filter, some of the light to which the film is sensitive is removed and therefore the exposure will need to be longer than if the glass were colorless.

It may be easier to visualize by referring to Fig. 3, which shows the effect of artificial light on the ordinary panchromatic film. The curve apparently shows a reduction of sensitivity toward the blue but obviously this has not changed. As there is less blue and ultra-violet in artificial light, this curve represents the effect that the light has on the film. The marked hump in the curve on the red end indicates that the presence of an increased amount of red in the incident light gives the effect of too light a recording of the reds. The green X filter cuts out this larger quantity of the red and a sufficient amount of the blue so that the film will give a faithful monochrome rendering when used in artificial light; however, it is obvious that a larger proportion of the light to which the film is sensitive has been removed, and a corresponding increase in exposure is necessary.

When a green filter is used on ordinary panchromatic film in sunlight, it acts like a yellow filter on the blues and also brings about a slight darkening of reds, Fig. 8C-10C.

The color of the incident light has been left in the background so long because most photographers are unable to distinguish the very slight incorrectness of the monochrome rendering due to a minor variation in the light. The increasing use of color films, particularly Kodachrome, has emphasized the importance, and even necessity, of correcting for the color —usually called color temperature—of the incident light. To insure that a Kodachrome rendering shall be faithful, a Color Temperature meter is



A. *B.* *C.* *D.*

Figure 8. Showing the effect of yellow, green and red filters on panchromatic film (DuPont Superior) in noon sunlight.

A. 1/200 sec., F:6.3, no filter, print exposure 6 sec.
B. 1/100 sec., F:6.3, yellow filter, print exposure 12 sec.
C. 1/100 sec., F:6.3, green filter, print exposure 10 sec.
D. 1/20 sec., F:6.3, red filter, print exposure 3 sec.

available for determining easily and exactly the color of the light on the subject; and to correct for slight variations in this light, a new series of delicately tinted filters are used with Kodachrome. Fortunately, we don't have to go to such lengths with black and white reproduction, but the basic principle should be kept in mind.

Color Sensitivity of the Film

As the red predominates in artificial light, if the film were particularly sensitive to this red the exposure required for a photograph could be materially reduced. The "supersensitive," or Type C films have been specially sensitized to the red for this reason, and therefore even in sunlight their sensitivity to reds is greater than that of the eye. For this reason Fig. 3 will also serve for Type C films in sunlight and adequate correction is accomplished by the use of the light green X-1 filter.

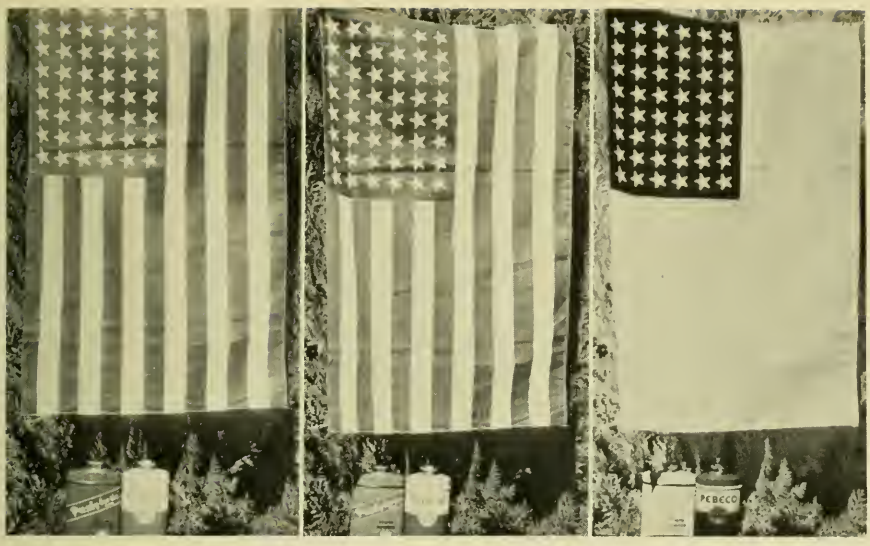
This red sensitivity is excellent for a subject in artificial light which can not be photographed in any other way, as it allows a more rapid exposure to be made. The increased amount of theater and night-club photography has been made possible partly because of the introduction of the supersensitive type films, such as Panchro-Press, Tri-X pan, Super Panchro-Press, and most of the 8 and 16 mm. panchromatic films. However, we do not require, or even expect, a faithful color rendering of our subject under these conditions. The supersensitive films may be used in artificial light under circumstances which require a faithful recording, making it necessary to remove a still greater quantity of the red light which strikes

the film. We must remove that portion of the red which predominates in artificial light and we must also remove an added amount to which the film is extra sensitive. A deeper green filter, known as the X-2, accomplishes this purpose and is used where a faithful reproduction is required, when using supersensitive films in artificial light.

It is common knowledge now that no one filter can be given a factor, by which the exposure should be multiplied, that can cover all types of film. The reason for this can be seen most clearly by referring to Fig. 4, which shows approximately the color sensitivity of a color blind film. There is a marked sensitivity to the ultra-violet and blue and very little or no sensitivity to the green. Fig. 9A was made on Eastman Positive film, which is color blind. Notice that the greens, yellows, and reds are much too dark, and the blues are too light, the sky blue top of one can appears to be white. An extreme example of filter factors would be the use of the G filter on this film. Almost all of the light to which this type of film is sensitive is removed, and experimentally we find that the exposure required with a G filter is impractically long. When panchromatic film is used, the G filter removes only a small proportion of the light to which the film is sensitive, and the increase in exposure over that required for no filter may be only three to four times. Another thing that we can see at once from Fig. 4 is the reason for the incorrect renderings of colors by films of this nature. The blues, as they do for all films, will be recorded as lighter than the eye sees them, and unless other parts of the picture are underexposed, the sky will appear a chalky white and as the film has very much less sensitivity to green than the eye, green objects will appear to the film, and, therefore, in the final print, much too dark or black; while the complete lack of sensitivity to reds will result in the reds being photographed as black. Fig. 5 shows the notable advance that was made on the introduction of the highly orthochromatic films, such as Verichrome, Plenachrome, etc. Like all films, the sensitivity to blue and ultra-violet is too great, but this can be removed by the use of the light yellow filters of the K type. These highly orthochromatic films have a sensitivity to the green, which is approximately that of the eye, so that greens will be faithfully recorded on such films. As there is no sensitivity to the red, however, reds, in general, will photograph very much too dark, or even black. This is no bar to the use of these films for the average landscape, as the average landscape has little or no red in it except possibly in the autumn. But when these films are used in taking pictures of persons, minor skin blemishes, freckles and wrinkles are exaggerated and red lips will photograph practically black. No filter, of course, can *increase* the sensitivity of the film to these colors, so that there is nothing we can do with films of this type to obtain a correct rendition of reds. However, for subjects in which red is missing and with a K-1½ filter, essentially faithful reproduction of blues and greens will be obtained. As yellows actually include some red, the yellows may appear too dark also.

The Problem as a Whole

At first an understanding of the whole problem seems quite difficult, but when we break it down into its elementary parts and see that the parts themselves are not difficult, it is easy to put these back together again into a logical system, which explains all of the known facts. The whole problem



A. *B.* *C.*

Figure 9. A. on Eastman Positive Film. B. and C. on Agfa Infra-Red Sensitive Film.

A. 1/8 sec., F:6.3, no filter, print exposure 10 sec.
B. 1/100 sec., F:6.3, no filter, print exposure 5 sec.
C. 1/20 sec., F:6.3, red filter, print exposure 12 sec.

can be summarized by saying that the ideal for correct photographic rendering is to have the monochrome values the same as the visual intensity of colors to the eye. To do this we have to combine three factors: the color sensitivity of the film, the color absorption of the filters, and the color of the incident light. We must choose a filter whose absorption is such that it will remove from the light striking the film that proportion and proper color range of the light to which the film has a sensitivity greater than the eye. A knowledge, therefore, of each of these independent factors will materially help in the prompt selection of the correct filter to use in a given set of conditions.

The charts are a help, but they do not take the place of seeing the actual photographic results of the use of filters. An unlovely composition was made with a flag and a couple of tooth powder cans against a green tree for a background, so that anyone can visualize the actual colors in the original subject; something which is impossible to do accurately with a more natural subject. For those who may not have these cans handy, it may be said the Prophylactic can is yellow having a diagonal red stripe in which the name appears. The top of the Pebeco can is a delft blue having a circle of the same color, most of the lower half of the can is a royal blue, the name in the same dark blue is against a white background. The illustrations were made with a Leica camera on Du Pont Superior, Agfa infra-red, and Eastman positive film. The films were developed in DK-20 in

order to conform to customary usage and to avoid confusing the reader. No one should infer from this, that I have lost faith in the P. and H. process, (see Camera Craft for March, April and May, 1939) I use it consistently for both negatives, and positive film strips. The projection prints are all on Kodabrom No. 2 developed in D-72, the exposure times of which are included for those who like to estimate the negative density, and approximate filter factors.

Contrast Filters for Special Effects

On the basis of our previous discussion, it will be possible for anyone to work out the special effects which can be obtained by the use of a variety of filters. On the other hand, some concrete examples would certainly help in attaining a clear understanding of their uses. The increasing availability of different types of panchromatic emulsions, particularly those which are sensitive to the infra-red, require a further extension of our knowledge of filters. To this end, we shall discuss a special class, usually referred to as the contrast filters. Contrast filters do not necessarily produce a long scale (more "contrasty") negative. On the contrary it happens with many films that the red sensitive part of the emulsion does not develop to the same gamma (contrast, roughly) as the rest and therefore an exposure using a red filter may require more development or if roll film is used the negative may require a short scale (more contrasty) paper. This is noticeable in Figure 10D. All these illustrations were developed together in the same developer, same temperature, same time and printed on the same grade of paper. This known variable is one of the things that makes it difficult to match color separation negatives.

By contrast filters we mean those which will produce an effect more or less different from that seen by the eye. The reproduction will not be faithful. We remove too much of a color, thereby rendering it darker than the eye sees it. By comparison, therefore, other colors will appear lighter and we refer to this effect as over-correction. Not all of the available contrast filters will be discussed but only the half a dozen which are of increasing usefulness to the advanced photographer. We can divide these into two main classes which will slightly overlap.

Haze Cutting Filters

One group of filters can be classed according to their increasing effectiveness in penetrating the haze of great distances. The simplest and lightest of these are the Aero filters which are a light yellow and resemble, rather closely, the K type filters. The main difference between the K and the Aero filters is that the latter cut much more sharply, and do not follow the gradually slanting line of the sensitivity of the eye. The Aero filters remove abruptly the violets and blues to which the film is especially sensitive and in this way allow a scene behind a light blue haze to record itself on the film. The eye is sensitive to wave lengths down to about 400 mμ, whereas the Aero filter cuts off quite sharply (a vertical cut on our charts) at about 440. A filter of a deep yellow color, the G filter, strictly speaking, falls into this classification of contrast filters. It was mentioned previously because it fitted into the group of yellow filters. When we notice that the G filter cuts out all light which is of shorter wave length than 505 mμ, we can see that the blue has been practically completely removed. As it is the short

Figure 10. Du Pont Superior Panchromatic Film with yellow, green and red filters.

Upper left (10A) 1/200 sec., F:6.3, no filter, print exposure 5 sec.
Upper right (10B) 1/100 sec., F:6.3, yellow filter, print exposure 4 sec.
Lower left (10C) 1/100 sec., F:6.3, green filter, print exposure 3 sec.
Lower right (10D) 1/20 sec., F:6.3, red filter, print exposure 1 sec.

waves which are scattered and so produce the haze, the more of the shorter waves we can remove, the greater will be the effect of haze elimination. A filter which removes the blue entirely and a fairly large proportion of the green will be more effective than the yellow filter, and will be an orange red. A useful one is called A. This cuts out all light shorter than 590 mμ (Fig. 6). Obviously, such a filter can only be used on a film which is sensitive to the red, but when a panchromatic film is used with an A filter a blue sky records very dark, shadows are practically black because of the blue which predominates in shadows, and greens are recorded in a darker shade than that which the eye sees. With an appropriately short exposure, great distances can be recorded on panchromatic film.

Tri-Color Filters

A second important class of filters is used in making the three negatives necessary for the reproduction of an object in natural color. These are the A, (No. 25), an orange red filter; the B-2, (No. 58), a green filter; and the C-5, (No. 47), which is blue. Fig. 6. We can see at once by remembering our original definition of color that by using a blue filter all objects which are blue will photograph white or at least a light gray, and all green and red objects will photograph dark. We can, with similar reasoning, use the green and the red filters. While it is not desirable, at this point, to discuss reproduction in natural color, we can round out our statement by saying that when positives of the three negatives so exposed are made in complementary colors and superimposed, we will have a natural color reproduction. Aside from their use in natural color photography, these three filters have some special uses of their own. We have already mentioned the haze cutting property of the A filter. If we consider the definition of a red object as one which absorbs blue and green, it can be seen at once that when a red filter is placed in front of our lens any object with red in it will photograph light and other colors will photograph dark. So we can use the A filter whenever we wish this effect. A frequent use of the A filter is in photographing red flowers against a green background. A garden with brilliant red flowers and green foliage may be very lovely when seen by the eye, and a beginner will frequently rush to get a camera in order to record the beautiful garden. If he uses an orthochromatic film, which is insensitive to red, the red flowers will appear practically black against the gray recording of the green, and this will in no way reproduce what was seen and the effect will be disappointing. The photographer may know a little more and may realize that to record red flowers he must have a panchromatic emulsion; however, if no filter is used, the red being of approximately the same visual brightness as the green will photograph in approximately the same shade of gray. This result is equally unsatisfactory because the flowers are lost in a more or less motley, over-all gray effect. Now if an A filter is used to photograph this same garden (naturally on a panchromatic film) the red flowers will photograph light and will stand out against the green foliage, which has been made darker by the removal of some of the green light which struck the film. This is a very positive example of over-correction. The colors are not at all faithfully recorded as the eye sees them but still the effect is very much more pleasing; seems to give more nearly the visual impression of the garden. The results of using a red filter on panchromatic film are shown in Fig. 8D and 11D. Reds and yellows are

A. *B.*

Figure 11. Infra-Red Film, with and without a red filter.
A. 1/100 sec., F:6.3, no filter, print exposure 10 sec.
B. 1/20 sec., F:6.3, red filter, print exposure 10 sec.

startlingly lightened in the flag stripes and in the Prophylactic can, and blues are materially darkened, most noticeably in the sky blue top of the Pebeco can. Imagine how red or yellow flowers would stand out against the darkened green background.

We could use the same line of reasoning on the green B-2 filter and show that any green object will photograph comparatively light, due to the removal of the blue and the red, which makes the blue and red objects photograph dark. While examples of the use of this filter are not of such frequent occurrence, it might be that we would desire to record green foliage against a red brick background. This could be done by using orthochromatic film, which of itself is not sensitive to the red, or it could be done using panchromatic film and the green filter which will remove the red. The green filter is also recommended when copying typing that may be done in purple ink; hereby removing the blues and the reds, the purple ink will photograph black and the contrast between the ink and the support is very materially increased.

Strictly speaking, the C-5 filter is not necessary except for the tri-color photograph. As it removes the red and the green, we find that it is only necessary to use a color-blind film to get essentially the same effect. On the other hand, one may not always have color-blind film available, and it may be desirable for artistie reasons to enhance the haze. For this pur-

pose a blue filter may be useful. If the haze is too deep for the A filter to be effective, the F, a deep red filter, is available which cuts out all of the blue and the green. If the haze is great enough to block up the distance, in spite of using an F filter, recourse may be had to the infra-red sensitive films. These are films which have been especially sensitized and are unlike any others. Fig. 7 shows that they have the ultra violet and blue sensitivity characteristic of color-blind films, they lack sensitivity to the greens and reds and have a remarkable sensitivity to the invisible infra-red. Because of the blue sensitivity they act like fast color-blind films when used without a filter, Fig. 9B, 11A. Because this film has no sensitivity to the green and red, any filter which cuts out the ultra violet and blue will produce the infra-red effect. Fig. 9C and 11B were taken with a medium red filter. The blues are turned quite black and the red stripes are completely lost. Shadows are largely empty black because there is little infra-red in the shadows. One finding which seems to contradict the statement that this film has no green sensitivity is that the green foliage and the lawn are very light. This apparent contradiction is due to the reflection of infra-red by the leaves. This also explains why the shade of a tree is cool, as the infra-red are essentially heat rays, but as they are invisible it is not noticeable visually. Wratten No. 88 and No. 88-A are deeper red filters. The extreme to which this can be pushed is shown by the No. 87 filter, which is visually opaque and absorbs all wave lengths down to 740 mμ, which is itself in the infra-red. By using this 87 filter some of the trick photographs taken apparently in complete darkness have been made. One of these filters is used to obtain moonlight pictures in bright sunlight. Similarly great distances up to several hundred miles can be photographed.

Literally hundreds of special cases will suggest themselves where filters will be indispensable. A few may be mentioned to start the thought processes.

1. A manuscript in black ink may be corrected in red ink. By photographing with a blue filter, the corrections show perfectly, but with a red filter the corrections are entirely wiped out. The charts of this article were drawn on red cross section paper but a red filter used in making the reproduction completely wipes out the cross hatching.
2. The grain of woods may be emphasized in a photograph by using filters which are closest to the color of the wood.
3. Infra-red films and filters have made it possible to reconstruct charred manuscript, to determine the authenticity of certain paintings and parchments, etc.

No article on filters would be complete without a word of warning about the home construction of filters. Every now and then some one tells about making filters of colored cellophane and photographic plates. If the authors told of the great limitations of such "filters" for the benefit of the few who might not recognize them it would be better. Except for use on an uncorrected lens and where no enlargement is contemplated they are quite worthless for two unsurmountable reasons.

1. The dyes in the cellophane have not been carefully selected.
2. Photographic plates are not sufficiently plane.

The dyes used in photographic filters have been carefully selected to remove just the right colors and in just the right amount. A dogmatic statement must be made to save space. A photographic filter and a piece of cellophane of the same visual color will not have the same effect on the film. It may be close enough for casual work but if one is going to be casual why use a filter at all. The second reason is very easy to prove to anyone. Merely hold the piece of suspect glass at an angle (45 to 60 degrees) to the line of vision, a little way in front of the eyes and jiggle it up and down, rapidly, while looking through it at some object. If the object remains stationary the glass is really plane. Incidentally this is a good test to make on commercial filters and some of them will not stand up.

Probably the most important single piece of advice that can be given to any beginner in photography, and one which is therefore frequently repeated, is to make all of his operations extremely simple. This advice is worth considering by anyone who takes photographs. One of the first simplifying steps is to decide to use one film and stick to it for all except highly specialized purposes, which is practically enforced on all users of long lengths of 35 mm. film. It is obvious that infra-red effects will require a film sensitive to the infra-red and the best results are obtained by using the process film in copying line drawings. This simplification is one of the reasons accounting for the increased preference of most photographers for panchromatic emulsions. It may be true that for a particular scene a color-blind or slightly orthochromatic film is best, however, the same effect can be obtained by using panchromatic film and one of the blue filters. In similar ways, we can avoid the necessity of carrying several types of film and of trying to decide which film is best for the particular effect desired. An effect obtained on either the color-blind or orthochromatic film can also be obtained on panchromatic film by the use of an appropriate filter. This attempt at simplification can not be too strongly emphasized. By using one film, the photographer becomes thoroughly conversant with all of its properties, with the required exposures and with the results that can be obtained by the use of various filters. He will need only one developer and become familiar with the different results that can be obtained by varying the time of development and the temperature of the developer. There will be no uncertain fumbling for the correct film to use. There will be no doubt as to the developer to use nor the time and temperature required. This reduction of uncertainty, this minimizing of experimentation will go far toward producing a uniformly high quality of negative, without which nothing can produce the ultimate aim, a good quality print.

It is to be hoped that the previous discussion will clarify some vague ideas on the use of filters, that it will enable the photographer to choose the correct filter for a particular purpose with certainty and will guide him in experiments along original lines and finally that it will assist him in simplifying the materials needed for his photographic work.*

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*Further study of the subject of filters may be profitably made in the following books:

1. Wratten Filters—Eastman Kodak Co. 15 cents.
2. Film characteristic booklets put out by different manufacturers.
3. The Photography of Colored Objects—C. E. K. Mees.
4. Photography, Principles and Practice. Clerc.
5. Encyclopedias, Reference books on Light.

Cinema Section

Edited by

William A. Palmer

"That's A Trick!"

The Memoirs of a Trick Photographer, Part II

Roy J. Pomeroy

BUT let's return to the halcyon days. My work with Hall was terminated by an order to get packed for my return to the East. Next day came the word "unpack," as the eastern studio was to remain closed, instead I was to assist Mr. Clarke who was to take charge of the Realart studio in Hollywood, also owned by my company. We moved in only to have that close too—the future looked none too bright. Here I was, employed as a photographic expert with a two years' contract, and no place to be expert in. My three months' novitiate was over and I had to earn my keep; the only way I could do this was to carve a completely new niche for myself. To this end I burned the midnight oil formulating a plan to organize a "trick department," which was an unheard of luxury in any studio. This plan included the purchase of a high speed or slow motion camera, the building and operation of an optical printer and also a step printer equipped with pilot pins for use in trick printing. I also outlined a scheme for shooting a background scene at one time and the actors at another and incorporating the two in one picture. This is now known as "composite photography."

The next day I submitted this plan to Mr. Lasky and his two associates, Mr. Eyton and Mr. Clarke. They approved the general plan, but the composite picture process was a little too much to swallow. Mr. Clarke shook his head at me as much as to say "Poor boy, Hollywood life is certainly taking it's toll!" It was not until years later that I was able to persuade them to spend any money on my brain-child. Mr. Clarke may have had some reason for his skepticism. A few nights previously he and Mrs. Clarke dropped in on my wife and me in our little bungalow in Laurel Canyon. Suddenly a bird in the hills above us started to sing a plaintive song. "What on earth is that?" asked Mr. Clarke. "That," said my wife, "is the killiloo bird!" The previous night the bird had obliged us with the same aria, and my wife had asked the same question. I had

no idea what it was, so I fabricated the story of the killiloo bird which I embellished with the statement that it could not fly, but living in the hills it had grown one leg longer than the other so that it could run around the hills clockwise. The only way by which it could be captured was to chase it counter clockwise—but why go on? Suffice it to say that my wife believed me implicitly—then—we had only been married two days; so she repeated my yarn in all seriousness, giving me full credit. Mr. Clarke looked startled but said nothing. I was about to explain when our neighbor, who like Conan Doyle had the ability to see fairies, ran over breathlessly to bid us come to her garden where a couple of the "wee folk" were sitting under a nasturtium. Unfortunately, by the time we arrived they were gone. Since that day Mr. Clarke had watched me with considerable solicitude. Some years later I co-directed the picture "Peter Pan" with Herbert Brenon, so maybe my vicarious knowledge of fairies came in handy after all.

But in spite of this, a modest sum—that is for the movies—was allotted for my year's work, and so the first "trick department" was born. I could not foresee that within a few years I would spend three times my first year's allotment in two days, "opening and closing the Red Sea" in Cecil de Mille's picture "The Ten Commandments."

My budget did not permit me to employ high priced cameramen and there being no unions to say me nay, I picked some likely lads from the carpenter shop and other mechanical departments. I never regretted this, because having none of the inhibitions borne of experience we blithely stepped in where angels feared to tread.

Bell and Howell had recently perfected a high speed camera which was capable of turning at a maximum speed of twelve times "normal," which was sixty feet a minute at that time. Irvin Willat, a former cameraman, was directing a sea picture at the studio and was using one of these cameras to shoot his miniature boat effects. Prior to this such miniature boats had been shot with the standard camera, the result being that they bobbed around like corks and simply screamed "fake." Willat's effects however were extremely convincing. He had discovered that by increasing the speed about six times normal or 360 feet per minute, ripples appeared to be waves and that a model boat seemed to acquire a sense of mass equal to that of it's big brother. There is a definite mathematical relationship between the size of the miniature, camera speed and this sense of mass, which was later discovered and defined by Arthur Ball, but at that time the results were accomplished by trial and error.

Mr. Willat had been kind enough to lend me his pet camera. Bob Roberts, my new assistant, and I had a wonderful time playing with it to try out new effects, although the gear-box had to be turned with a long crank, which we found to be a distinctly athletic pursuit. Bob had been in the Navy and was young and husky, so "art" triumphed.

The studio was making a picture called "To Have and to Hold." For this they had purchased a schooner which was converted into a high pooped three-master of that period. The script called for this ship to be blown up. George Fitzmaurice, the director, had not seen Willat's shots—but he had seen other miniature boat shots of that era, and didn't want any part of them. The management of the studio however were torn between their desire to get a convincing shot and at the same time save their expensive schooner. If I could sell the director on a miniature shot they would buy me a high speed camera. He agreed

to use the miniature if it was any good, otherwise "bang" would go the real schooner—and, I thought, probably my new job with it!

A beautiful replica of the ship was made, six feet long, in which the powder expert had placed detonators and magnesium powder. It was controlled by piano wires and had waterproof cable leading from the detonators to the switches, which consisted of a board in which was a row of nails. These were attached to the detonators; contact was made by dragging the hot wire from the battery across them. This scheme was in general use at that time, but after one or two people had been inadvertently—but fortunately mildly—blown up this practice was discontinued. These were replaced by knife switches, with an insulated bar to lock them in an open position, to prevent the usual inquisitive soul from literally "blowing the works."

Mr. Willat had been most kind to me. He not only had allowed me to watch him shoot his miniature boats, but had also explained some of his pet tricks. His camera had been placed on a small tripod or "high hat" bolted to a platform set in the water. This brought the lens about a foot above water level. I believed I could make a more imposing shot if I could get a low perspective with the lens almost at water level. To accomplish this I had a watertight box built six by six by three feet high. In the front was a plate glass window through which we were to shoot. The top was open but was partly covered with black cloth to prevent reflection. This box was bolted to a platform in the tank which had been securely anchored. The camera was so placed that the lens almost touched the glass. The ninety foot tank was now filled, so that the water was almost to the level of the lens. Seen through the finder the boat seemed to tower above me and looked quite imposing.

This was to be a "day shot" so a huge gray sky backing had been lowered a few inches into the water at the end of the tank; the junction of this with the water formed the horizon. For a high perspective shot the water would have been extended by painting it on the backing to the correct level. On both sides were wooden towers on which were small buffalo blowers to blow damp yellow smoke across the sky backing. Shot at high speed this smoke gave the illusion of heavy rolling clouds. As soon as the clouds had been formed, the shot had to be made immediately for they dissipated rapidly.

Wave machines had been made out of water tight boxes, two by two wide and twelve feet long. When properly counter-balanced with sand bags they were jounced up and down by husky laborers and produced quite convincing waves. Today this scheme is still used but the wave machines are motor driven.

The clouds, the action of the boat and the waves were carefully rehearsed. Now came the crucial moment. I instructed everyone to get behind compo board flats for protection against possible flying debris. The clouds billowed out, the waves were perfect. I called "camera!" and the ship sailed majestically into the scene; I signalled the powder man and braced myself for the explosion.

There was a weak "pffft" like a damp squib and a few spars fell off the boat. The charge had become wet! The tension had been so great and the results so absurd that we all laughed and howled like maniacs—all but the powder man —he was quite chagrined. Next time he decided he would give a real explosion. He certainly did. It rocked the whole studio. In my excitement I stood up and received a large chunk of the boat full in the face; but we had a beautiful shot and the big schooner was saved for many another metamorphosis. It was then that I decided that the life of a trick photographer would never be dull!

Today the handling of explosives for the movies is a fine art but in those days, although every precaution was taken, the results were uncertain and often fraught with considerable danger. Sometimes they were not without some element of humor, which the studio management quite failed to see.

For the picture "Old Ironsides" a full replica of the old man o' war was constructed. She was fitted with wooden cannon with bores of steel tubing to enable them to fire a mixture of black powder and magnesium. When she sailed out of San Pedro harbor in all her glory, a U. S. battleship fired a salute. Not to be outdone "Old Ironsides" fired a salvo from her wooden cannon. The effect was superb and was followed by loud cheers from her crew—which soon turned to groans—the breech of every gun had blown out and had completely demolished all their dunnage which had been stored on the gun deck.

When the studio management settled for the damage they were surprised to find that every sailor had apparently carried a dress suit and a portable radio which together with their other effects had been completely destroyed by the explosion. In spite of this loss they were still able to defeat the Tripolitan Corsairs.

(To be continued)

What Is Your Photographic I. Q.?

Check the square which, to the best of your knowledge, indicates the correct answer. Then turn to page 210 to determine your score. The perfect score is 100%; for each error deduct 10%. Excellent rates 90%; very good, 80%; good, 70%; fair to bad, below 70%.

1. A film given an exposure of one second, as compared with a film given twenty-five exposures at 1/25th of a second will be:
   - ☐ More dense
   - ☐ Less dense
   - ☐ Of the same density
   - ☐ Lacking latitude
2. Hippolyte Bayard in 1839 presented to the public the first:
   - ☐ Daguerreotype
   - ☐ Calotype
   - ☐ Collodian Plate
   - ☐ Direct paper positive
3. The initials F.P.S.A. stand for which of the following:
   - ☐ Fellowship of Photographic Science and Art
   - ☐ Famous Photographers Society of America
   - ☐ Fellow of the Photographic Society of America
   - ☐ First Purist Salon of America
4. A fine grained film with favorable development will have a resolving power of, which one of the following:
   - ☐ 10 lines per millimeter
   - ☐ 100 lines per millimeter
   - ☐ 500 lines per millimeter
   - ☐ 1000 lines per millimeter
5. A polarizing screen is very effective for use in:
   - ☐ Making exposures in cold climates
   - ☐ Filtering chemical solutions
   - ☐ Eliminating reflections
   - ☐ Shortening exposure time
6. Last year the New York Fair prohibited the use of tripods by amateur photographers until late in the season, but San Francisco permitted their use from the start. This year—
   - ☐ Both Fairs prohibit tripods
   - ☐ New York prohibits, but not San Francisco
   - ☐ Both will permit tripods
   - ☐ San Francisco prohibits, but not New York
7. One of the longest lengths of time that the latent image on a film has been preserved between exposure and development is:
   - ☐ One year
   - ☐ Four years
   - ☐ Eleven years
   - ☐ Thirty-three years
8. The terms, conjugate foci, nodal points, principal axis, and circle of confusion, will suggest one of the following:
   - ☐ Chemistry
   - ☐ A focal plane shutter
   - ☐ The resolving power of film
   - ☐ Lens
9. Check one of the following as being spelled incorrectly:
   - ☐ Paraphenylenediamine
   - ☐ Ferrotype
   - ☐ Pyrogaloll
   - ☐ Aberration
10. On any balance or scale, chemicals should not be weighed directly on the balance pan because it may:
    - ☐ Cause contamination of the chemicals
    - ☐ Cause undue oxidation
    - ☐ Ruin the balance
    - ☐ Cause unnecessary pan absorption.

"Luella" *Wally Milne, Pasadena, Calif.*

First Award—Advanced Class

■ We have often thought that many photographers place a considerable handicap upon themselves because they seem to feel that they can not achieve what will be accepted as an artistic result unless they deal with the romantically beautiful, or with some idea or emotion of transcendental importance. In short, they seem always to feel the necessity of being at least very serious, if not ponderous. Even the most cursory peak at the history of art will show that virtually all artists have delighted in dealing with amusing incident or pleasant triviality. Such work may not be placed at the very fore-front of artistic endeavor but it nevertheless holds a secure and honored place. It would not be difficult to present a compelling brief to the effect that photography as a medium is eminently suited to the capturing of just such entertaining incidents as the one pictured here. Art is many things to many people. Among the many things which Art is, Entertainment may not be the first, but it is by no means the last. The point of this piece is to express the hope that those photographers who have an eye for this sort of thing will go ahead and do it. As Jimmie Doolittle said in our March issue—"Photography could be more fun." For us this picture is a swell example of how much fun it can be.

Data: 3¼ x 4¼" Graflex; 1/90th sec. at F:16, on E. K. Tri-X, in D-76; bright sun with reflector; 11 x 14" bromide print.

Second Award

Advanced Class

"Sand Dunes—Coachella Valley"
William Hart,
Pasadena, Calif.

■ Mr. Hart shows considerable skill in making the most of this very beautiful and interesting leading line. His choice of balance between light and dark tone appears to be quite nicely adjusted. Observe how the inclusion of the clump of bushes at the left edge of the print controls any tendency which the eye might otherwise have to slide down the slope of the dune and slip out at the left. As things are the eye would play along the interesting convolutions of the leading line without interruption if it were not for the inclusion of the figure. The figure is definitely a mistake in this picture, particularly so in its present position, for it pulls the eye over to the left edge of the print, which is exactly where we don't want it to go. The figure, of course, helps to hold the eye in the picture, just as the bushes do, but it is unnecessary since the bushes adequately perform that function. Nor do we need the figure to establish scale. Our only purpose in this respect is to make the dunes appear as

(Continued on page 202)

Third Award

Advanced Class

"Mrs. Baldauf" *Fred Herrington,*
San Francisco, Calif.

■ Mr. Herrington is rapidly establishing himself as a master of outdoor portrait lighting. He tells us that his favorite sort of location for a picture of this kind is one in weak sunlight, or in the shade but with open sky overhead. This gives a lighting which is quite diffused but which still has sufficient direction to give good modeling. Light colored ground, the side of a tent, or something which will reflect light up into the eyes is also desirable. But lighting is only one of the problems which confront the portrait photographer. The most difficult and elusive aspect of portraiture is to so manage pose and expression that the observer feels that the picture is giving him an insight into the character of the subject, when the objective is straight portraiture as is the case here. In other cases the photographer may use his subject as a model through which he strives to express some idea or emotion. Then the success of the picture depends not upon a revelation of the characteristics of the model, but upon the intensity and clarity with which the idea or emotion is projected. It is these qualities which persistently elude the grasp of the beginner in portraiture. He first turns to subject matter for a solution and seeks out all manner of fantastically bearded faces, etc. But he soons learns that, while an interesting face is necessary, the qualities which he is seeking must come from his own insight and understanding. They are the unique contribution which the artist makes to the picture.

Data: 3¼ x 4¼" Graflex; 6¼" Zeiss Tessar; 1/30th sec. at F:6.3, in weak sunlight, on E. K. Panatomic X in DK-76; 11 x 14" print on Gevaert Gevaluxe, in M. Q.

Robert Edmonds,
Pasadena, Calif.

Fourth Award

Advanced Class

■ If we compare this picture with Mr. Herrington's portrait it is plain that Mr. Edmonds has not been particularly concerned with his subject as a personality. Instead, it would seem that he has used his model to represent Femininity in somewhat general terms, with particular emphasis on the feminine interest in clothes. It might be that this picture was originally made as a fashion shot—if so the intention of the photographer would be substantially the same. Mr. Edmonds has made very good use of the interesting outline of the head and has given this form great force through contrast with the background. The face is very well lighted, except for too much shadow about the lips which gives an appearance of heaviness there. We think that the general plan of the spacing is good with the tilt of the head to the right playing against the leftward tilt of the hat. The stability of the arrangement would be improved if the shoulder line carried over to the right edge of the print. Tag-end corners such as we find in the lower right are often disturbing, particularly so when strong contrast is present. The bit of enclosed background at the lower left should also be filled in. Assuming these corrections we would then advise a somewhat smaller image in the present picture space with the whole form moved upward so that the eyes would be definitely above the center.

Data: 4 x 5" View camera; 5¼" Zeiss Tessar; E. K. Tri-X film; 11 x 14" print on Agfa Brovira glossy.

"Pebble Glass"
Herbert P. Bond,
Hollywood, Calif.

Fifth Award

Advanced Class

■ One of the valuable lessons which all photographers must sooner or later learn is that seemingly inconsequential details may be most helpful in building up the interest value of a picture. For example, the fact that this window is made up of pebbled glass instead of clear glass adds much through the playing of the glass texture against the outline of the figure. Observe how the varying brilliance of the lighting causes the glass texture to be lost and found, and how this in turn adds also to the interest value of the picture. We think that Mr. Bond was wise in deciding to give sufficient exposure so that the figure is not seen in silhouette, but carries some detail and a suggestion of the third dimension. The feeling of seeing through the glass is thus much more apparent than it would otherwise be, which is, of course, a factor which helps to add interest.

Data: Rolleicord; 1/50th sec. at F:8, on Agfa S.S. Pan., in Edwal 12; 8 x 10" print on Agfa Cykora 2, glossy.

"Winter Radial" *Dr. T. H. Cheavens, Dallas, Texas*

First Award—Amateur Class

■ The charm of this picture quite obviously lies in the lovely and harmonious tonal arrangement. The composition is unusually strong and simple with all lines leading directly to the house which constitutes the point of emphasis. It will be evident however that the furrows in the immediate foreground assume such a size that they tend to become monotonous areas, and also, at least to a photographer's mind, suggest some distortion due to too great a proximity to the camera. Both of these difficulties can be readily overcome if we trim about two fifths of the total height away from the base of the print, transforming our picture from a vertical into a horizontal format. In our reproduction we have maintained the black border in the same proportions as on the original, in order to point out that this aspect of the mounting appears to be overdone. Such a heavy black border as this on a high key print is too overpowering—it becomes more prominent than the picture itself. If a black border is used at all with this picture it should be a very narrow one, and it would be better to use a grey stock for the step-off in order to avoid too great a contrast with the tonal values of the picture.

Data: Rolleicord; Triotar lens; 1/50th sec. at F:22, on E. K. Super XX; developed 3½ mins. in Agfa 17, 10 mins. in water, 10 mins. in Edwal 12; 10½ x 13½" print on E. K. Portrait Proofing, in Amidol; gold toned.

Isadore Berger,
Detroit, Mich.

Second Award

Amateur Class

■ We feel confident that all will agree that Mr. Berger has handled this subject with fine understanding. In speaking of the two portraits in the advanced class we mentioned a few of the ways in which a photographer might approach a portrait subject. In this case Mr. Berger has used his model to suggest the sorrows and aspirations of the whole negro race. Certainly those appealing eyes looking upward out of darkness, convey the message most eloquently. Observe how nicely the lighting fits the mood of the picture and how it concentrates attention on the eyes, enhancing their importance and power. Wisest decision of all was to let the left side of the print go completely dark. This is not only desirable in this case but actually essential to the success of the picture. For what gives this picture its very strong emotional impact, is the way the very expressive eyes reach out of darkness toward the light. And so it seems clear that Mr. Berger "felt" this picture before it was made. That is the crux of the creative effort—the rest is just technique.

Data: Rolleiflex; E. K. Panatomic X in D-76; Sunlight, 11 A.M. in December; 11 x 14" print on Agfa Brovira glossy in D-52.

"Sleeping Beauty"
C. B. Phelps, Jr., A.R.P.S.,
Grosse Pointe, Mich.

Third Award

Amateur Class

■ For us, at least one of the most promising aspects of present day photography is the growing evidence that more and more photographers are beginning to develop a sense of humor. As this picture shows, the zoo is a fine place to look for subject matter which will tickle the funny bone. The peculiar position which this hippo has selected for a nap is certainly good for a chuckle in any company. One of the most fruitful points of view which one can adopt in looking for humorous material among animal subjects is to seek attitudes, expressions or actions which suggest or resemble human activities. The greatest artist of all time in this field is unquestionably Walt Disney. The photographer can not reach the heights of fantasy which Disney attains because of the limitations of his medium, but if he can learn to see animals as Disney sees them an endless parade of picture possibilities will open up before him.

Data: 1⅝ x 2¼" Voigtlander Prominent; 10 cm. Heliar, F:4.5; E. K. Panatomic in D-76; 13½ x 16" print on E. K. Vitava Projection F2 in D-52.

Fourth Award

Amateur Class

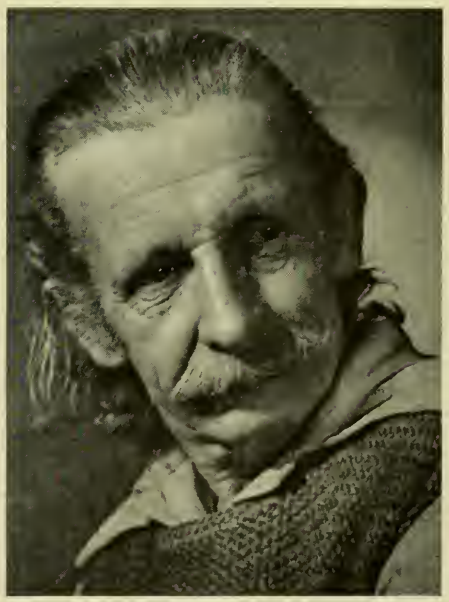
A. S. Mawhinney,
New York, N. Y.

■ This picture carries the mood of a late winter afternoon very beautifully. It is technically very good. The composition is in good balance but it could be made more effective by concentration. As things are the great expanse of foreground and the large uninteresting area on the right have a diluting effect which takes away from the potency of the picture material. This situation is comparable to too much soda in a whiskey and soda. We don't need more whiskey to make a good drink—simply less soda. And so we can trim about one quarter of the height away from the base, almost one quarter of the width from the right and enough from the left to eliminate the branches which are seen in the upper left. This trimming also has the advantage of getting rid of the branches in the upper right and it removes nothing which is essential to the picture.

Data: 13½ x 16½" print, gold toned.

Fifth Award

Amateur Class



"Local Character"
Marvin MacLean,
San Francisco, Calif.

■ The tilting of head and shoulders is, of course, a well known device for aiding the suggestion of life and movement in a portrait. So far as pose is concerned this device is well utilized here. The camera, however, is placed just a little too close so that there is distortion enough to make a bit too much difference in size between near and far shoulders. The amount of distortion is not great—hardly enough to spoil the picture, but we want to point out the necessity of watching this condition, particularly with such a pose. As the apparent size of the far shoulder falls off, the support which it should give to the head diminishes. If things go too far the head will not appear secure in the picture space. When such support is lacking the observer gets the impression that the model must be making a distinct muscular effort to hold the head in position. This is disturbing because it makes the pose seem strained and unnatural.

Data: 10 x 13" print from a paper negative.

Monthly Competitions

Scoring for Club Trophy Cups

The following won prizes for their clubs in the Advanced Class: Wally Milne and Robert Edmonds, for the Pasadena "Y" Camera Club; William Hart, for The Pack Rats; Fred Herrington, for the E.P.I.C. Pool; and Herbert P. Bond, for the Specialists Camera Club.

The following won prizes for their clubs in the Amateur Class: Dr. T. H. Cheavens, for the Dallas Pictorialists; Isadore Berger and C. P. Phelps, Jr., for the Detroit Camera Club; A. S. Mawhinney, for the Miniature Camera Club of New York; and Marvin MacLean for the Photographic Society of San Francisco.

Contributing Clubs

Aluminum Camera Club (New Kensington, Pa.)
Amherst Camera Club (Mass.)
Bakersfield Camera Club (Calif.)
Bluefield Camera Club (W. Va.)
Boulder Lens Club (Colo.)
California Camera Club (San Francisco)
Camera Club of Richmond (Va.)
Camera Club of San Pedro (Calif.)
Charlotte Camera Club (N. C.)
Clarinda Camera Club (Iowa)
Cleveland Camera Clique (Ohio)
Dallas Pictorialists (Texas)
Detroit Camera Club (Mich.)
E.P.I.C. Pool of San Francisco
Exeter Photographic Society (Calif.)
Fort Dearborn Camera Club (Chicago)
Fort Wayne Camera Club (Ind.)
Jackson Park Camera Club (Chicago)
Manhattan Camera Club (N. Y.)
Marin Camera Club (Calif.)
Miniature Camera Club of New York
Missoula Camera Club (Mont.)
Olympic Camera Club (Wash.)
Pacific Pictorialists (San Francisco)
Pack Rats (Pasadena, Calif.)
Pajaro Valley Camera Club (Watsonville, Calif.)
Paramount Camera Club (Los Angeles, Calif.)
Photographic Society of Philadelphia
Photographic Society of San Francisco
Queen City Pictorialists (Cincinnati, Ohio)
Redwood Empire Camera Club (Santa Rosa, Calif.)
Rothschild Camera Clinic (Los Angeles)
Signa Phi Nothing (Sacramento, Calif.)
Specialists Camera Club (Hollywood, Calif.)
Telephone Camera Club of Manhattan
Toledo Camera Club (Ohio)
University of California Camera Club (Berkeley, Calif.)
West Allis Photographic Club (Wisc.)
Wilson Dam Camera Club (Ala.)
Y.M.C.A. Camera Club (Victoria, B. C., Canada)

STANDING OF CLUBS

Large Clubs Advanced Class

California Camera Club	5
Manhattan Camera Club	3

Small Clubs Advanced Class

Pasadena "Y" Camera Club	22
The Pack Rats	9
Signa Phi Nothing	7
E.P.I.C. Pool	5
Rothschild Camera Clinic	2
Specialists Camera Club	2

Large Clubs Amateur Class

Miniature Camera Club of New York	12
Detroit Camera Club	8
Photographic Society of San Francisco	6
Amherst Camera Club	5
California Camera Club	5
Oakland Camera Club	4

Small Clubs Amateur Class

Dallas Pictorialists	5
Camera Club of San Pedro	3

(Continued from page 197)

large and majestic as possible. With the dunes dominating the distant mountains, as they do, they appear larger without the figure than with it. One further small point. It is best to avoid tangential conditions such as occur between the peak of the second dune and the distant ridge, because of their ambiguous nature. This would be corrected by vertical adjustment of the camera position, provided that were possible, and in this case it would be best to have the dune reach above the ridge since we want the dunes to dominate.

Data: 9 x 12 cm. Voigtlander; Skopar lens; E. K. Panatomic X, in DK-50, by Weston reading; K-2 filter, 6:30 A.M.; 11 x 14" bromide print.

Correspondence*

Orchids For Mortensen

Dear Sir:

During a quarter century, as may have come to your notice, I have seen a great many photographs. During the same period I've made quite a number myself.

While I have had the privilege of looking at some thousands of photographs that seemed to possess every element contributing to near perfection, I've seen but two that I really wished I'd made myself.

One was the work of Arthur Kales—which I am fortunate, now, to possess; the other, "The Quest For Pure Form," by Mortensen.

Both subjects are humorous and, by this token, not art.

I hope for the circumstance that will allow me the joy of adding Mortensen's print to my "gallery" of two photographs that I like better than my own!

James N. Doolittle.

Hollywood, Calif.

Make Your Pictures Sing!

Dear Sirs:

I do not usually write letters to editors of magazines, but I cannot refrain from telling you how much good Paul Hexter's last two articles did me. I know that most good photographers say that the developer does not have a great deal to do with negative quality, yet all of them seem to have some particular pet which they think gives them better negatives than any other formula. This is the first time I realized why all developers can give similar results.

I look forward to Mr. Hexter's book, "Make Your Pictures Sing," because if it is like his articles it is just what I am looking for.

Let's see more articles from him.

Yours very truly,

John V. Wilson.

Brighton, Mass.

Dear Mr. Hexter:

Your Camera Craft articles on exposure and development have guaranteed you at least one cash customer for your "Make Your Pictures Sing." My order was placed today.

Your March discussion of the relationship between Weston ratings and development times is the first working information I have ever been able to get on how to start after the type of negatives I happen to need. I've "over-exposed and under-developed;" I've "under-exposed and over-developed;" I've given "normal exposure and normal development;" but I've never done it twice alike and I've never been entirely sure why I even bothered about any of it. I've burned up probably 1,000 rolls of 120 film and several hundred feet of 35 mm. negatives during the past three years, and I suppose I've developed a little of the "feel" old-timers talk about—but I'll trade you a pound of feel for an ounce of know almost any time. . . .

Cordially,

C. C. Robinson.

Editor,
The Insurance Salesman
Indianapolis, Ind.

Dear Sirs:

. . . Mr. Hexter's approach to these problems is clear and devoid of the usual mystery. Of course by experience we can learn much about photographic technique. The shorter way, and the way advocated by Mr. Hexter, is scientific, and if followed should eliminate most of the guesswork. . . . I am looking forward to his new book. . . .

Very truly yours,

Richard Wagner.

San Francisco, Calif.

Dear Sirs:

. . . They are the most informative I have discovered in quite a while, they really give something to work on towards the goal of the perfect negative, and the perfect picture. I will be looking forward to Mr. Hexter's new book, "Make Your Pictures Sing!"

Sincerely yours,

Jerry Bump.

Santa Cruz, Calif.

Dear Sirs:

. . . I am very much interested in getting a copy of "Make Your Pictures Sing!" because from Mr. Hexter's articles the book should be what every photographer has wanted from a book and so far been unable to get. . . . Please send me a copy of the book as soon as it is ready.

Very truly yours,

Lew Gorgan.

Minneapolis, Minn.

Dear Sirs:

. . . Something I've been after for a long time. He announces a new book for April. Please send me one.

J. W. Mason.

Nogales, Ariz.

Dear Sirs:

. . . The articles have helped me greatly and I am anxiously awaiting his new book. . . .

Sincerely,

Jas. C. Farber.

New York, N. Y.

Mr. Hexter's next article will appear in the May issue. "Make Your Pictures Sing!" will be ready April 15th.—Ed.

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*Readers are requested to add a postscript to letters intended for this department, expressly granting permission to publish, **and are urged to write as briefly as possible.**—Ed.

Pictures Wanted

Dear Sirs:

You may wish to make mention in your editorial columns that we are in the market for action photographs of pictorial quality and composition showing in use any items commonly purchased in hardware stores. Typical of such items are tools, paint, housewares, refrigerators, ranges, washing machines, poultry feeders, farm equipment, shotguns and fishing tackle as well as other sporting goods. Photographs should have a lot of human interest.

Payment for photographs accepted will be made in accordance with their quality.

Yours very truly,
Val. G. Jurgell,
Assistant Editor.

Hardware Retailer,
915 Security Trust Bldg.,
Indianapolis, Ind.

Club Notes

Smart photographers will plan to be in Oakland on August 1, 2 and 3, if the plans of an active and energetic group in that city are even partially realized. What they have in mind is a conclave of amateur photographers which will be the biggest and most interesting thing of its kind ever attempted. Envisioned is a program of lectures and demonstrations in which every performer is a headliner such as could only be obtained for a large and important audience. Each registered conclaver will receive a special badge which will guarantee several special privileges at the Fair which will not otherwise be obtainable. There will be field trips and a banquet and a picture contest after the event with distinctly valuable prizes. And, of course, an exhibit of fine photography.

It is too early for us to be more specific, but mark these dates on your photographic calendar as Very Important!

John P. O'Callaghan, Master Sergeant and dean of army air corps photographers, has retired from active serviec. After thirty years of army service, Sergeant O'Callaghan was honored when thirty-nine bombers passed in review at Hickam Field, Hawaii. This was the first time an event of this kind ever was held in Hawaii for an enlisted man. His many friends on the mainland will be as pleased as we were to learn of this unusual recognition. Mr. O'Callaghan will continue the classes in photography that he is now directing in the adult education department of the University of Hawaii. The Success of these classes is easily understandable when one considers not only Mr. O'Callaghan's years of experience in photography but also his vital interest in it as the finest of all hobbies.

The Berkeley Y. M. C. A. Camera Club, of Berkeley, Calif., announces its First Annual Amateur Print Contest. It is open to all amateur photographers and there is no entry fee. Prizes will be awarded through the courtesy of the Normand Photo Service, 2153 Shattuck Ave., Berkeley. Closing date is April 2, 1940. All entries should be mailed to the Berkeley Y. M. C. A., 2001 Allston Way, Berkeley, Calif.

The Fourth Virginia Photographic Salon, sponsored by the Camera Club of Richmond, Inc., Richmond, Va., was successfully completed when 100 prints were selected for hanging from 484 submissions. The Salon is limited to entries from those born in or now living in Virginia. It is now on view at the Virginia Museum of Fine Arts in Richmond and following this showing the exhibition will be made available to camera clubs and other groups in Virginia. Write the Museum for further details.

"Highlights," bulletin of the Fresno Camera Club of Fresno, Calif., announces a competition for their less "plushy" members. They are holding a box camera competition night open to all Brownie shots and the membership will have a chance to prove that its the man behind the camera that really counts.

The Licking Camera Club of Newark, Ohio, a group recently organized, are preparing a set of prints which they will be glad to exchange with other clubs. Write to Hewitt A. Shauck, 1279 W. Main St., Newark, Ohio.

The Green Briar Camera Club, 2650 Peterson Ave., Chicago, Ill., recently held its sixth annual meeting. The group meets each Wednesday evening at its club rooms (address above) at 8 P.M., and visitors are always welcome.

Camera clubs in the vicinity of Racine, Wis., are invited by the management of the S. C. Johnson & Son, Inc., makers of Johnson's Wax, to visit and photograph their famous office building, designed by Frank Lloyd Wright. Recently, the Photo Pictorialists of Milwaukee visited the building and pronounced the tour an extraordinarily fascinating field trip. Interested clubs should write to Roy E. Peterson, Photographic Dept., S. C. Johnson & Son, Inc., Racine, Wis.

Fotoflash, club bulletin of the Maywood Camera Club, Maywood, N. J., bids goodbye in a recent issue, to their club president, Basil A. McLean. Mr. McLean has been transferred to San Francisco Calif., and the regret expressed by the Maywood Club at his parting would make it advisable for local clubs to contact this capable club member immediately. Address 2520 Hale Drive, Burlingame, Calif.

The Austin Town Camera Club, of Chicago, Ill., meets every Monday night, at the Austin Town Hall, Lake and Central Ave. The Club, now beginning its fifth year of photographic activity, offers its members a completely equipped darkroom, a studio and meeting room with facilities for hanging 70 prints under glass, and a circulating library of photographic books.

The Annual Report of the vigorous Photographic Society of India discloses that they have nearly doubled their membership during the past year. The group now has more than 130 active members and are constantly increasing the equipment available to these members.

The Indianapolis Camera Club, of Indianapolis, Ind., have formed a "Research Committee" whose duty it will be to investigate and report on new photographic equipment and materials. This should be a valuable service for any club to offer its members, providing, of course, the committee is made up of competent members with open minds.

The Charleston Camera Club of Charleston, W. Va., meet every other Friday evening in the studio of the Charleston Daily Mail. The group is now planning a statewide competitive Salon for this Fall. Write W. B. Thompson, Secretary, 1207 Homer St., Charleston, W. Va.

The Science Museum Photographic Club is affiliated with the Buffalo Museum of Science, of Buffalo, N. Y. The club grew out of a class in photography given by the Museum and has an enthusiastic membership of about fifty. The new group is planning a complete club program with meetings twice monthly.

The Burbank Camera Club, of Burbank, Calif., though only recently organized, has enjoyed an unusually fine series of programs through the cooperation of well-known Southern California photographers. Communications from other groups would be welcomed and should be addressed to the Burbank Camera Club, Burbank, Calif.

The Clifton Camera Club, of Clifton, N. J., announce the completion of their new portrait studio for members. Communications for the club should be addressed to Mr. Wallace King, Secretary, 185 Second St., Clifton, N. J.

The Lake Charles Camera Club, of Lake Charles, La., holds meetings the first and third Mondays of each month. The membership now totals fourteen and is increasing steadily. Communications can be addressed to Gilbert Watson, President, at 317 Peake St., Lake Charles, La.

The Channel City Camera Club, of Santa Barbara, Calif., were privileged to have two famous photographers as guests at their annual dinner. Mr. Fred Archer and Mr. James Doolittle gave interesting talks and then judged the group's annual competition. Other well known outsiders attending this successful annual event were: Mr. Norris Ewing, President of the Ventura County Camera Club; Mr. Leo Moore, President of the Metro-Goldwyn-Mayer Amateur Camera Club; and Mr. Rex Wakefield, President of the Southern California Council of Camera Clubs.

The Amateur Motion Picture Club of Saint Louis, Mo., have adopted a plan that should offer a real service to their members. A Question Box has been placed at the door, for each meeting, and members with a problem can write it out. The question will be read at the meeting and answered immediately by club experts.

The Reading Camera Club, Reading, Pa., recently began its twenty-seventh year of photographic endeavor. The group meets Thursday of each week at the club headquarters, 519 Penn St., 4th Floor. Monthly print competitions are a popular activity and the club is now making preparations for its annual exhibit to be held at the Reading Museum and Art Gallery.

The Camera Club Council of Northern Ohio, 2073 East 4th St., Cleveland, Ohio, was recently organized to promote interclub friendship and activity in this area. Sixteen clubs are associated and meetings are held every other month on the second Friday. Clubs in this district are urged to send delegates to the council meetings.

The Columbus Photographic Society of Columbus, Ohio, held their first Annual Meeting and Banquet on January 8th. The event was of special interest because it marked the first anniversary of the club's existence, completing a most successful year which included the winning of the annual cup donated by the Inter-Club Council of Central Ohio. The club now has a limited but full membership, furnished club rooms with a fully equipped studio and are holding three meetings a month. The 1940 traveling shows are being arranged and any club with displaying facilities will be given full information by contacting E. K. Francis, Ch. Print Committee, 413 E. Broad St., Columbus, Ohio.

The Chase Bank Camera Group, of New York City, whose membership is made up of employees of the Chase National Bank, recently enjoyed a very interesting lecture, demonstration by Morris Germain, A.R.P.S., on portrait lighting technique. The group meets at their club rooms, 42 Trinity Place, New York City.

The Waterville Camera Club, of Waterville, Maine, was organized in June of 1939. The group presents a very active program and recently exhibited 200 color transparencies to the public. Monthly competitions are another popular club activity and the group are now preparing a traveling exhibition. Write Frederick W. Smith, Secretary, P. O. Box 254, Waterville, Me.

The Troy Photographic Society, Troy, N. Y., is just beginning its third year of activity. Meetings are held the first and third Wednesdays of each month, at the Troy Y.M.C.A., at 8:00 P.M. Monthly print competitions are held the first meeting of each month. Write the Secretary, John R. Palmer, 1 Winslow Ave., Troy, N. Y.

The Lititz Springs Camera Club, of Lititz, Pa., now offers its members unusually fine accommodations. They have four darkrooms, a studio, a reading room and a gallery for display of prints. This group is preparing a traveling show for 1940 and is also desirous of exchanging prints with other clubs. Write, Bob Kreider, 39 S. Broad St., Lititz, Pa.

Camera Clubs on the west coast who are interested in booking the western traveling show of the Indianapolis "Y" Camera Club should communicate with Louis Wacker, Print Director, 310 No. Illinois St., Indianapolis, Ind.

The International Salon, of the Photographic Society of America, will be held in Cleveland, Ohio, during the latter half of October, 1940, in connection with the Society's Sixth Annual Convention. Entry blanks and further details may be obtained from the Corresponding Secretary, Mr. John S. Rowan, 2315 Homewood Ave., Baltimore, Md.

The Photographic Society of America has just published an attractive leaflet on its aims, organization and activities, which may be obtained by any photographer free of charge. Write the Secretary, Photographic Society of America, 10 Park Ave., New York City.

The Maywood Camera Club, of Maywood, N. J., is presenting a very interesting and informative series of meetings and they will welcome prospective members at these gatherings. Meetings are held the second Wednesday of each month and further information may be obtained from Mrs. Grace Fay, 802 Main St., Hackensack, N. J.

The Manitoba Camera Club, of Winnipeg, Man., Canada, recently held their Sixth Annual Meeting. With plans now complete, announcement was made that the Sixth Annual Western Canadian Salon of Pictorial Photography, sponsored by the club, will be exhibited at the Civic Auditorium for two weeks beginning June 8th.

The Milton (Mass.) Camera Club, has grown in two short years into a flourishing group with forty active members. Meeting twice a month, they are presenting an unusually interesting and varied program. Two exhibitions are held each year, a free camera school has been sponsored, print competitions, demonstrations and lectures are among their many activities. Correspondence should be addressed to Mr. Bill Dyer, Secretary, 17 River St., Dorchester, Mass.

The Camera Circle, of San Francisco, Calif., will hold its first Print Exhibit and Open House, Sunday, March 31st, from 11 A.M. to 5 P.M., at the club headquarters, 1032 Clement St. Though organized as recently as May, 1939, this group has already acquired permanent club rooms and darkroom facilities. You are cordially invited to attend the Camera Circle's Open House.

Free photographic courses are being offered in San Francisco by Loeber's, 70 Post St. Two courses will be presented: one for Beginners and one for Advanced Workers. The Beginners' Course starts March 15, at 8 P.M., and the Advanced Course March 18th, at the same time. Tickets may be obtained from Loeber's and as the supply is limited applications should be made immediately. The classes will be conducted by C. Stanton Loeber and Jack Cannon, internationally known photographers.

A Photographic Contest, offering $700 in prizes, will be held in conjunction with the First Annual Philadelphia Camera Show and Photographic Exhibition to be held at The Arena, 45th and Market Sts., Philadelphia, Pa., from April 24th to 27th, inclusive. The contest is open to any amateur photographer in Eastern Pennsylvania, New Jersey and Delaware. Closing date for entries is April 15th. Write the above address for entry blanks and further details.

The Photographic Color Transpareney Show, sponsored by the Miniature Camera Club of Philadelphia and the Franklin Institute, proved a tremendous success. Entries were limited to six slides for each contestant, mounted in glass. Alfred de Lardi, Joseph Janney Steinmetz and C. E. Harrison acted as judges and selected 86 slides from 160 entries. The selected slides were projected for exhibition to a capacity audience.

"Foto News," club bulletin of the Gary Works Camera Club, of Gary, Ind., blossomed forth this month with a new cover on which was reproduced the best member's print of 1939. We are not sure that the new cover is for this special number only or if it is to be a regular feature of the bulletin but we do know that the content of "Foto News" is always interesting and entertaining.

The California Camera Club, of San Francisco, Calif., again walked off with the honors in the Western Pennsylvania Salon competition for camera clubs. With two legs on the plaque, the San Francisco group will spend every effort to win next year, which will give them permanent possession.

Photographers in Wilkes-Barre, Pa., will have the opportunity to use a model darkroom without charge. This service is a feature of the new Hurjax Camera Shop, 2 W. Northampton St., of that city.

In the "It Can't Happen to Me" Department we must quote a story from "Synchronized Flashes" club bulletin of the Light & Shadow Club, of San Jose, Calif. "While setting up to shoot a subject recently, one of our members was hastily called from his work and laid his camera aside face up in the sun. Unfortunately, it was so placed that a perfect focus of the sun's rays burned a hole in the focal-plane shutter. Strange but true."

The 7th International Photographic Salon of the Pictorial Photographers of America will be exhibited, during March, at the American Museum of Natural History, Central Park West and 79th St., New York City.

An exhibition of color photography is planned by the Newark Museum, Washington Park West, Newark, N. J., from April 16 to June 2, 1940. The exhibition will take up the fundamentals of color and their relation to the problem of photography, descriptions of several of the chief processes in use, special applications of color photography and will also include a section on color motion pictures. In addition, the exhibition will show a collection of prints by prominent professionals in the field.

The Second Annual Nature Salon is being conducted by Hobbies, the magazine of the Buffalo Museum of Science, of Buffalo, N. Y., for all photographers interested in nature. Cash prizes will be awarded and the closing date is May 10th, 1940.

Entry blanks for the Marshall Field & Co. Seventh Annual and Fourth Annual International Photographic Competition and Salons are now available. Prizes in the Ama-

teur Division only will amount to more than $500. Entry fee is 50 cents which includes the return of prints at the end of the Salon. All pictures must be submitted on 16 x 20 mounts. Write Don Loving, Section 59, Marshall Field & Co., Chicago, Ill., for entry blanks and further details.

The Nebraska City Camera Club. Nebraska City, Neb., is a new group organized in February of this year. They will welcome correspondence from photographers in this area and from other camera clubs. Address Wm. H. Reuter, Secretary, Nebraska City, Neb.

The Fiftieth Annual Exhibition of Members Photographs is now on view in the Galleries of the Brooklyn Museum, Eastern Parkway and Washington Ave., Brooklyn, N. Y. The show is open to the public and will be exhibited until March 31st.

A novel and stimulating prize is awarded by the Marin Camera Club, of San Rafael, Calif., to the winner of their Quarterly Print Contests. The winner is given his choice of Salons to which he will send his winning print and the Club pays the entrance fee.

The Associated Camera Clubs of the Chicago Area have enjoyed a steady growth since this cooperative group was organized in 1936 with eight member clubs. They may well be proud of the total of 26 members with which they began the year 1940 and it speaks well for the cooperative attitude among camera clubs in the Chicago area.

The Castle Kamera Club of the U. S. Engineer Office, Providence, R. I., was organized in February, 1940, with a charter membership of 38. Meetings are held twice monthly. Correspondence with other clubs is invited and letters should be addressed to Miss Mary O. Fitzgerald, U. S. Engineer Office, Providence, R. I.

The Youngstown Camera Club. Central Y. M. C. A. Bldg., Youngstown, Ohio, report that their Second Annual Salon has been successfully completed. 1,100 prints were submitted and 198 were selected for hanging by the following distinguished jury: Nicholas Ház, B. H. Chatto and John Moddejonge.

Having dropped the "Miniature" and now being known as The Camera Club of Oakland, Calif., this flourishing East Bay group now offers its members complete freedom as to the size and type of camera they will use.

The Cleveland Camera Clique. 10510 Buckeye Road, Cleveland, Ohio, are planning an elaborate series of programs for 1940. They will be glad to exchange ideas on club activities with other groups.

"The Developer" bulletin of the Los Angeles Camera Club, 2504 W. Seventh St., Los Angeles, Calif., contains a little story on one "Philpott Lensworth" that will appeal to the funny bone of every photographer. We wish we had the space and permission to reprint it here but we must refer you to the February issue of "The Developer." The story is unsigned so we assume it comes from the pen of the editor, M. M. Russell. The Los Angeles Camera Club, one of the best equipped in the country, is now conducting a drive for new members and for a short time the usual initiation fee will be waived. Act at once if you are interested. Phone DRexel 9092 or write the above address.

The Manhattan Camera Club, of New York City, has discontinued its Inter-Club Competitions and announce the final standings. First place was won by the Florida Camera Club and the following make up the fifteen ranking clubs: Lens Club of Bayonne, N. J.; Camera Clique of St. Louis; Queen City Pictorialists, Cincinnati; Camera Guild of Larchmont, N. Y.; Shorewood Camera Club, Milwaukee; Chase Bank Camera Group, N. Y.; Atlanta Camera Club; Long Island Photo Society; Reading (Pa.) Camera Club; Patterson (N. J.) Camera Club; Maple Bluff Camera Club, Madison; Fort Wayne (Ind.) Camera Club; Camera Associates of Huntington, W. V.; Atlantic City Camera Club.

The Jackson Park Camera Club, of Chicago, Ill., is proud to announce the opening of its new studio in the Gladstone Hotel. The studio is 18′ x 40′ and it is equipped with lights and backgrounds and will be open to members at all times.

The Chicago Camera Club, 137 No. Wabash Ave., Chicago, Ill., will exhibit two shows during April. A "Camera Craft" Traveling Salon and an exhibit from the Camera Guild of Cleveland will be on display and the public is invited to attend.

The 1940 Kodak Exhibit will be exhibited in the following cities during April: Albany, N. Y., April 16-17, The Ten Eyck; Cincinnati, Ohio, April 12-15, The Gibson; Indianapolis, Ind., April 4-7, The Claypool; Providence, R. I., April 3-5, The Providence Biltmore; Springfield, Mass., April 8-9, The Kimball; Syracuse, N. Y., April 20-22, The Onondaga; Utica, N. Y., April 12-13, The Utica.

The Camera Club. 121 West 68th St., New York City, the oldest and one of the best equipped camera clubs in the country, wishes to bring to the attention of the readers of this magazine that every Wednesday evening is "Guest Evening." A free lecture is given on photography and refreshments are served.

The Annual Western Travel Photo Contest and Exhibition of the Oregon Coast Highway Association, Chamber of Commerce Bldg., Marshfield, Ore., has just been announced. $1000 in cash prizes will be awarded. Write the above address for rules of the contest and entry forms.

It is with deepest regret that we learn of the death of Frank V. Chambers, F.R.P.S., Editor and Publisher of "The Camera." Mr. Chambers was a leader in all that was for the good of photography and his loss will be keenly felt not only by his many friends in photographic circles, throughout the world, but also by photographers generally for photography has lost one of its leaders.

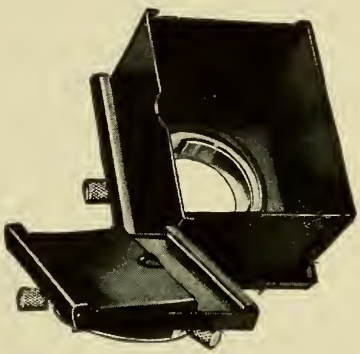
The San Francisco Examiner, Hearst Bldg., San Francisco, Calif., invites photographers to submit their best prints for possible publication, announces Walter Lenz, Camera Editor. For each photograph selected, The Examiner will pay $5.00. Unless accompanied by self-addressed stamped envelopes, prints cannot be returned. The Examiner has also prepared an exposure record booklet for recording data on negatives. You can obtain a free copy from leading San Francisco photographic stores or direct from Walter Lenz, Camera Editor, the San Francisco Examiner, Hearst Bldg., San Francisco, Calif.

A new type of heat absorbing plate glass, known as alko glass, that may be used by photographers to protect negatives from heat rays during the enlarging process has been developed by technicians at the Libbey-Owens-Ford Glass Co., in Toledo, Ohio. Aside from its absorbing properties, alko glass is extremely tough and hard and it is free from distortion.

Week-end courses in nature photography are to be given at the Alleghany School of Natural History, Alleghany State Park, New York, during the months of June, July and August. The courses will be directed by C. Huber Watson, a specialist in this field. A request to Miss Esther W. Eno, Buffalo Museum of Science, Buffalo, N. Y., will bring an illustrated leaflet with complete details.

$5.00 each for acceptable photographs in which the illumination has been supplied in whole or in part by "Eveready" pocket flashlights loaded with "Eveready" batteries, has been announced by the manufacturers of these products. Send photographs for consideration to the advertising agency: J. M. Mathes, Inc., Dept. E, 122 East 42nd St., New York, N. Y.

Notes and Comments



Bee Bee Folding Pocket Sunshade

The new Bee Bee Folding Pocket Sunshade and Filter Holder has been introduced by Burleigh Brooks, Inc., 126 W. 42nd St., New York City. It offers great carrying convenience, yet it springs open at a touch ready for use. It is adjustable and holds filters. Available in four sizes, $2.50 each.

A new Burke & James Bargain Catalog, No. 340, has just been published by Burke & James, Inc., 223 W. Madison St., Chicago, Ill. This big book, 7 x 12 inches, 84 pages and hundreds of illustrations on every kind of photographic equipment, will be sent to you free upon request to the above address.

The R. H. S. Paper Safe, distributed by the Wolk Camera Co., 33 W. Jackson Blvd., Chicago, Ill., offers perfect protection for your paper and at the same time makes it easily accessible. It is light-proof and dust-proof and is sturdily constructed of seasoned wood, with metal bracing. There are compartments for 11 x 14 inch, 8 x 10 inch, 5 x 7 inch and 4 x 6 inch sheets of paper. A sliding door makes it easy to obtain the paper and when the door is released it is snapped shut by a spring. Price is $6.50 and complete details are available from the above address.

The Timit, a combination enlarging exposure meter and automatic exposure switch (see illustration), has been introduced by Burke & James, Inc., 223 W. Madison St., Chicago, Ill. This ingenious device times the exposure, times the test strip and operates the enlarger light, all automatically. It

Timit

gives an automatically graduated test strip with markings on the side that indicate the exact time of exposure, using a very small piece of paper. The enlarger light is operated automatically after being set, giving exact timing for each print. Price is $12.50. For complete details, write the above address.

Still Bargaingram No. 242 has just been issued by the famous Bass Camera Co., of Chicago. It lists thousands of items of interest to every photographer. Write Dept. KK, Bass Camera Co., 179 W. Madison St., Chicago, Ill., for your free copy.

Two new models of the popular Agfa Memo Camera, which have just been announced, will be of interest to photographers preferring the 35mm. "single-frame" picture size. Each of the two new cameras employs the same general construction features of the Agfa Memo camera introduced last year, but the aperture and film advancing mechanism are designed to give 48 exposures 18 x 24 mm. (approximately

¾ x 1 inch) with a Memo film cartridge. Prices are $25.00 for the F:4.5 model and $35.00 for the F:3.5 model.

The Southwestern Photographers Association and The Texas Professional Photographers Association will hold a joint convention at the Hotel Texas, Fort Worth, Texas, on April 1st to 4th, inclusive. An elaborate program has been arranged and a feature of the meeting will be an exhibit of one of the finest collections of photographs ever assembled in the southwest.

The Picture Packard Contest, which closed March 15th, has undoubtedly turned out to be one of the biggest of all photographic competitions. Packard officials report that 3,300,000 contest blanks have been shipped from the company's plant.

Graflex-made cameras again topped the field in the Fifth Annual Exhibition of the Press Photographers' Association of New York. Taking all four of the first prizes and fourteen out of a total of eighteen prizes, Graflex-made cameras repeated the triumphs of previous years.

A new self-reflecting photoflood lamp with a black neck has been introduced by the General Electric Co., Nela Park, Cleveland, Ohio. The black opaque coating on the neck of the lamp prevents any stray light from spilling backwards from the lamp's neck and into the camera lens.

A series of lecture-demonstrations on modern flash photography are being presented in eastern cities through the courtesy of Goodspeed, Inc., 200 Fifth Ave., New York City. The lectures are conducted by Karl A. Barleben, F.R.P.S. Ask your local camera shop for information on the dates for your city.

A new extension adapter with built-in ejector for use with the new Mazda No. 5 photoflash lamp or "Mighty Midget" has just been announced by the Kalart Co., 915 Broadway, N. Y. The new ejector will offer speed in using these new lamps without the danger of burnt fingers.

A new 4-way Darkroom light that makes every kind of light a darkroom operator needs instantly available has just been announced by the Albert Specialty Co., 231 S. Green St., Chicago, Ill. Through the simplest of adjustments, this safelight gives a choice of four basic filters: Diffused white light for viewing, red for orthochromatic film, green for panchromatic film, and green-orange for enlarging or contact papers. The 4-way Darkroom light is sturdily constructed and the filters are made of unbreakable plastic. Price complete is $3.95.

Rollei Contest results have been delayed by war conditions in Europe, announces Burleigh Brooks, Inc., distributors of Rollei equipment. Final judging had to be held up until entries from all countries were received. All entries from this country arrived safely abroad and all contestants will be advised promptly as soon as word is received from the manufacturer.

The publication of "Photography With the Rolleiflex and Rolleicord" has been temporarily suspended due to the uncertainty of deliveries. There are a limited number of back issues still available which may be obtained from Burleigh Brooks, Inc., 126 W. 42nd St., New York City.

An opportunity for free-lance photographers to earn money is offered by the Business Stimulators, 605 W. Washington, Chicago, Ill. Complete details are offered without charge. Write Dept. 12, at the above address.

The Bunnell Studio and School of Photography has just prepared a new, attractive folder describing their excellent facilities and their courses. Courses cover illustrative, color, portraiture and pictorial photography and there is also a course covering the basic principles of the subject for beginners. Day or evening instruction is offered to suit your convenience. Write the Bunnell Studio and School of Photography, 2502 West 7th St., Los Angeles, Calif., for a free copy of the folder. Visitors are welcome at the school.

The Camera Mart, Inc., at 70 West 45th Street, New York, N. Y., which has for the past two years been under the supervision of Irving Browning, well known still and motion picture cameraman, announces the publication of its first bargain bulletin. This catalog of still and motion picture equipment is sent free on request.

New Eastman Safelight

The Eastman Kodak Company of Rochester, N. Y., announces a new Darkroom Lamp that is trim in design, provides ample light for work tables and trays. Safelights are readily interchanged. Price is $3.00, extra safelights 75 cents each.

Two new Kodaguides have just been issued by the Eastman Kodak Co., of Rochester, N. Y. The Eastman Film Kodaguide provides data on identification of film type, color sensitivity, Kodak Speeds, Weston and General Electric meter settings for both daylight and tungsten, a notching code chart, a chart showing the monochrome rendering of colors by each film type under tungsten light, daylight and tungsten factors for eight commonly used filters, and spectrograms of all film types and spectral transmission of all filters charted in full color. All presented on a pocket-sized card

3 x 4½ inches. The other guide, the Effective Lens Aperture Kodaguide, is for use in all branches of copying and small-object photography. Kodaguides are priced at 10 cents each.

The Kodak Projection Print Scale, introduced by the Eastman Kodak Co., of Rochester, N. Y., offers a simple, quick and easy way to determine exposure when making enlargements. It is a 4 inch disc, divided into 10 numbered sections that decrease clockwise in density. A test strip is placed beneath the Scale and given a 60 second exposure. After developing, the correct exposure time, in seconds, can be read directly from the best sector as printed. The Projection Print Scale also determines the proper grade of paper that should be used. If details appear in nearly all sectors, the proper paper has been used. If details appear in only two or three sectors, the paper is too contrasty and if details are lost on practically all sectors the paper is too soft. Price is only $1.00.

George Murphy, Inc., 57 East Ninth St., New York City, is the country's oldest photographic stock house. They carry a complete line of photographic supplies and will be glad to send you a copy of their Mammoth Photo Supply Catalog. A free copy of their monthly magazine "Snapshots," will also be sent on request to the above address.

Best-Test White Rubber Paper Cement, manufactured by the Union Rubber & Asbestos Co., Trenton, N. J., is the ideal adhesive for mounting prints. It is easy to apply and will not wrinkle, curl or shrink. Of greatest importance is its transparency and the ease with which excess cement is rubbed off with the fingers. A handy, economical Dispenser is also available, in which the brush is adjustable, and with the lid forms an airtight cover for the cement. Write the above address for an illustrated folder on the Best-Test Products.

A new Weston Film Speed Sheet has just been released by the Weston Electrical Instrument Corp., Newark, N. J. It covers all types of films, black-and-white and color, for movies and stills. Send for your free copy to the above address.

Expert camera repair service is offered by the United Camera Co., Inc., 1515 Belmont Ave., Chicago, Ill. They specialize in making bellows to order in any size. Write for prices to Dept. F at the above address.

The opening date for the Western States Photo Dealers & Finishers Convention is but a few days away and from every indication it will be the most successful ever held from the standpoint of number of exhibitors and in attendance. The meeting will take place March 21st to 23rd, inclusive, at the Roosevelt Hotel, Hollywood, Calif. A very interesting and entertaining program has been arranged that will fill the days with informative meetings and lectures and the nights with merriment.

Abe Cohen's Exchange will open a new uptown branch store at 336 Madison Ave., New York City, in the very heart of the Grand Central Zone. The new store, which will open April 12th, will be one of the finest camera establishments in the city, completely stocked with everything of value to the photographer and staffed with men who can answer and help you with your photographic problems. It is recommended that out of town customers continue to send their orders to the main store at 142 Fulton Street.

A free demonstration outfit for making home movie titles is being distributed, as an introductory offer, by Jacob Stein, manufacturer of "A to Z" movie titling outfits, 175 Fifth Ave., New York City. The demonstration outfits are large enough for practical use. Regular "A to Z" Titling Outfits sell for the remarkably low price of $2.00.

Answers to What Is Your Photographic I. Q.?

1. More dense. The example mentioned in this case is effected by what is known as the "failure of the reciprocity law." For ordinary values of illumination the "reciprocity law" holds true, but for great and slight, and intermittent exposures, it does not.

2. Direct paper positive. Bayard's method was unique. First paper soaked in a silver nitrate solution was exposed to light; when it turned black he immersed it in potassium iodide and exposed it in the camera; the light bleached the paper white in proportion to its strength with a resulting direct positive.

3. Fellow of the Photographic Society of America. The Photographic Society of America has recently announced that Fellowships and Associateships will be awarded to deserving photographers.

4. A fine grain film, under favorable developing conditions, will have a resolving of about 100 lines per millimeter. The average emulsion, however, has a resolving power of about 40 to 50 lines per millimeter.

5. Eliminating reflections. When a polarizing screen is placed over a lens and rotated to the necessary position, reflections or overly bright highlights can be altered in brightness. It is very useful when photographing such subjects as water, glass, glossy woodwork, etc.

6. We are reliably informed that both fairs will permit the use of tripods this year.

7. Thirty-three years. In 1897 three young explorers set out in a balloon from Norway to drift over the polar regions to America. Nothing was learned of their whereabouts until 1930 when their bodies and equipment, consisting in part of some exposed films, were found on an Arctic island. The film, apparently thirty-three years after exposure, was developed with considerable success.

8. Lens. In the study of lenses, all of the aforementioned terms are used.

9. Pyrogaloll is spelled incorrectly; it should be Pyrogallol. This is the developing agent commonly known as Pyro.

10. Cause contamination of the chemicals. Each chemical should be poured on its own clean piece of paper placed on the pan. This will avoid corrosion of the balance pan as well as contamination of the chemicals.

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CAMERA CRAFT

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"Dorothea Lange" *Ron Partridge*

(See Book Review Section)

1940 PRICE 25c
FUNCTION OF PHOTOGRAPHY . Paul L. Hexter, A.R.P.S.
TH SHOOTS THE WORKS . . . . . Bob Smith
TOGRAPHER AND MODEL PART II . . A. & D. Bernsohn
OR MOVIES AT NIGHT . . . . . J. T. Mullin

IN EXPLOITING THE CAMERA'S CAPACITY FOR DEALING WITH THE HUMOROUS AND FANTASTIC, STUDENTS HAVE DISCOVERED A FIELD OF PHOTOGRAPHIC EXPRESSION THAT FAR TRANSCENDS THE MERELY "CANDID" OR "PURE."

MORTENSEN SCHOOL OF PHOTOGRAPHY

LAGUNA BEACH CALIFORNIA

"The Hands of a Pianist" — *Julian Smith, F.R.P.S.*

Korth Shoots The Works

Bob Smith

PERHAPS nowhere else in professional photography is the spirit of the amateur so happily conducive to good results as in industrial photography. For years photography has served the industrialists mainly as a descriptive medium: cataloguing machines, recording buildings, explaining processes. The pictorial nature, the splendor and grandeur of industry were overlooked. But now all that has changed; description often takes second place and effect emerges as the most important criterion in judging industrial photographs.

But how is that elusive something called "effect" to be captured? Perhaps one way is to apply a little composition to commerce: to forget nuts and bolts and remember forms and masses,—or if the masses at hand do not lend themselves to dramatic photography, to try the opposite and with unusual lighting and emphasis play up the nuts and bolts.

The amateur who searched long for beauty and harmony in form and line, who attempted to capture the finality of a sunset or the sublimity of a cat,—perhaps this photographer was one well fitted to interpret modern technology in its all important impact upon the lives of men.

A long series of effective and moving industrial photographs, endless in variety and treatment, has come from the camera of Fred G. Korth of Chicago. He works in a glow of excitement and some of that glow is reflected in his pictures. He brings to the prosaic factory or the drab mill the desire to find the meaning of the place, the spirit that animates it.

Somewhere hidden in the machines and processes of any plant is the combination of line, form, and light that gives the key to a successful camera portrait of its activity. The photographer has static gray scale tones to work with: he must make these serve to convey roar and din of foundry or forge shop, or silence and mystery of conversion tanks.

Korth "shoots the works," goes the whole way to create an effect, to imprison an idea on the film. I have worked with him on many jobs, under

Fred G. Korth

varying conditions,—have seen him get what he wanted and miss what he went after, critical of every shot; enthusiastic or unmoved as the photographic worth or worthlessness of the situation appeared. His main question when a picture is suggested by himself or another is "So what?" What right has this photograph to be? And many a shot is condemned by a little determined analysis before the shutter clicks.

Determination to get the picture he sees plays not a small part in his work too. At times some place or activity about a plant is so characteristic that to him it pervades the place, clamors for expression, but a responsible official or guide can see no importance in it and drags him to some other location. Invariably, however, one means or another serves to bring him back to the scene he really wants to shoot. In not a few cases that has been the best photograph of the series.

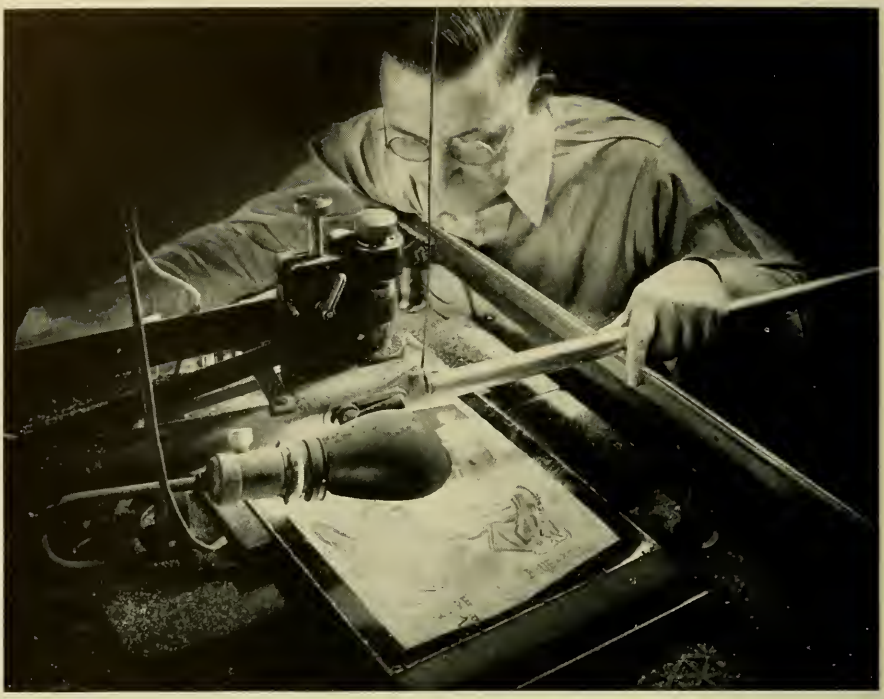
Through a long day of photographing a great forging plant there was an incessant earth shaking thumping as tremendous hammers pounded tough steel into intricate crankshaft shapes. Those hammers were like conscience: always with us. While he shot other pictures, descriptive and dramatic, the pounding never ceased, the camera was jolted on its tripod; all the shooting was conditioned by the hammers. They must be pictured, but how? Here detail was superfluous. The massive shapes of the hammers outlined against the skylights with the steampipes and power lines leading in to them like arteries to a heart combined to make the picture as nearly expressive of the mood as was possible (Figure 1).

Another industrial plant was concerned with a conversion process. Grain into starch, grain into syrup, grain into liquors, grain in box cars, in elevators, in vats, in mixers and filters, in pressure chambers; dry grain, wet grain, hot grain, cold grain,—and almost invariably and to us most important: invisible grain. Korth soon discerned that he had to photograph the conversion in symbols. There were symbols enough: huge cylindrical grain elevators, tanks of a thousand shapes, fantastic pressure

"Power Hammers" *Fred G. Korth*

Figure 1

Courtesy Wyman-Gordon Company



"The Router" *Fred G. Korth*

chambers many stories high. More than shots of operations or photographs of processes, these things held the meaning of grain conversion.

Jets of steam, tank cars, tall power-house chimneys, rectangular windows brilliantly reflecting the late afternoon sun,—all this caught Korth's eye as he passed from one building to another. We had passed this place before, but now was the moment to picture it. In the even light of mid-day no picture was there, only a prosaic record of buildings and tank cars. But the low-keyed late afternoon light brought the elements together into a composition: the steam hinted at the conversion process, the chimneys suggested a power station and the energy to keep the machinery running, the tank cars showed how some of the finished products were carried away, and the shadows suggested the ever-present mystery of the place (Figure 2).

The right light didn't last long. We had to forget all about our dignity and run at top speed to just the proper viewpoint. The situation was full of excitement, but there was no doubt that he had the picture. One can't afford to miss at a time like that. Right there is where professionalism comes in.

By constant practice and painstaking effort the amateur irons out the difficulties of technique, becomes a "sure shot," is able to deliver a promised picture to his customer on time,—and becomes a professional somewhere along the line. The important thing is to combine the enthusiasm of the amateur and the sure footedness of the professional; to be careful that though technique is conquered, spontaneity is not lost.

"Refinery" *Fred G. Korth*

Figure 2

An industrial plant new to him is a signal for Korth to make an inspection trip. This is a haphazard but amazingly comprehensive tour commencing with a foreman or superintendent confidently in the lead, progressing through numerous flying side trips and sudden stops, and finally coming to an end with the guide tagging resignedly along behind reduced to the level of an ambulatory information bureau. The guided photographer has his own ideas about what is interesting. To the credit of these guides generally, it may be said that they are patient and helpful to the photographer in spite of the fact that his presence may mean interruption of schedules, and loss of time to some extent. But Korth, once started, makes an amazing number of shots in a short period, mitigating somewhat these difficulties.

At a machine tool company, where the tour revealed that size was the main theme, a huge gear presented the general idea better than any other object in the shop. But how could it be utilized to greatest advantage? A silhouette again provided the answer, this time against the wall of windows. A man was placed in position at one edge of the gear to provide scale, and his activity of measuring the gear carried the theme of accuracy in spite of great size, an idea not at all displeasing to the management of the plant. A flash bulb placed behind the gear on the floor and ignited during the exposure served to separate the dark base of the gear from the black floor. The finished photograph, unmistakably one of huge machinery, yet with all detail subordinated to the idea, gave a feeling of the unique abilities of this machine company (Figure 3).

Sometimes artificial lighting indoors is useless, especially in the case of steel mills where activities spread over such large areas that providing enough light to illuminate them evenly for short exposures would be impractical, and competition with the brilliance of the light from molten metal would be undesirable. Here the selection of a viewpoint is of prime importance, for often the story can be told with a simple time exposure as the white hot metal passes into or through the picture area. Timing and originality are equally important phases of picture making in these mills.

As the long rails come from the rollers, the hall is dark. The rail settles into place, the whirling saws descend and for a few short seconds the great hall is a scene of unparalleled splendor. First a viewpoint that would reconcile the flying sparks into something resembling a composition, next an exposure of perhaps a second, timed to catch the peak brilliance of the scene, and last a prayer that none of the molten bits of metal burn a hole into the camera bellows or the photographer's skin. There it is, the whole operation one of simple planning that insures results (Figure 4).

Korth doesn't resort to tricks for tricks' sake. His equipment is versatile but this versatility of the camera is not used in an effort to compensate for poorly visualized pictures. In every case the camera is regarded as the tool, not the creative element, and is used in the simplest manner permitted by the requirements of the picture. The habit of depending upon camera adjustments to produce pictures is fatal to good photography. Nevertheless every photographer is confronted with situations in which a maximum of swings and adjustments are vitally necessary. Korth uses a 5″ x 7″ Deardorff camera with five lenses of different focal lengths: a 12 cm. Angulon, and

"Gear" *Fred G. Korth*

Figure 3

Symmars of 16.5, 21, 27, and 36 cm. Needless to say the three shorter lenses serve for most industrial shots.

Only in those rare instances when the light is very poor or when the plant management cannot permit the use of flash or flood lights because of the danger of explosion does Korth use one of his miniature cameras. Contrary to popular concepts, most of his spectacular photographs were made with a Deardorff camera.

Back in the studio with a case of precious negatives to develop, no matter how great the rush may be, care and accuracy remain the rule in

"Hot Saw in Action" *Fred G. Korth*

Figure 4

processing. If the holders are full of dust or graphite from the mills they must be carefully cleaned by air pressure before the films are removed for development. Manipulation in development or printing is employed only when absolutely necessary, the planning of the picture having been done prior to the exposure. There are so many interesting shots possible under the most prosaic conditions in industry, that "dramatizing in the darkroom" is rarely justified.

People may assume that in a studio known for its good prints, long hours are devoted to the super refinements of technique, that gamma and sensitometric curves etcetera occupy long hours of discussion and experimentation. The exact opposite is the case here, and processes are simple and direct, but done with the *n*th degree of care. Perhaps one of the pet peeves in this darkroom is the gamma-talking photographer whose walls are frescoed with hypo and developer of ancient vintage. Here an ounce of cleanliness and care is better than a ton of photographic theory,—and this is not empty contention but proved result-getting method.

There it is. First, an idea; second, a little stubborn determination; third, a feeling for the unusual and dramatic; fourth, good composition; fifth, efficient equipment; sixth, simple, careful, truly photographic processing with accent on cleanliness. Add them all up and you have a photograph worth looking at. When Korth "shoots the works" these are the elements that count.

The Function Of Photography

Paul Louis Hexter, A. R. P. S.

THE question, "Is Photography an Art?" is still not conclusively answered in the minds of many people, artists, critics and photographers alike. Like the man on the flying trapeze, people admire the photographer's dexterity but do not know what makes him do it. In "The Modern Movement In Art" (incidentally an excellent study and expression of the entire modern art movement), A. H. Wilenski devotes many pages to the influence of the camera on the art of painting. He shows how the influence of the camera is one of the basic reasons for the modern movement in painting. At the same time he denies the camera is, or can be used for creative expressive art.

This attitude, which is typical of many conservative art critics as well as many laymen, comes from their being unfamiliar with (1) true function of the camera, (2) the expressive possibilities of camera technique, (3) attempting to judge photography by the same standards as painting. If the true function of the camera is understood, the expressive possibilities of the technique appreciated, and photographic standards of judgment are set up, then photography becomes a truly creative medium.

When, over a century ago, photography first appeared it was hailed as a mechanical means of achieving the same ends as painting. In other words the purpose of a photograph was to imitate the work of painters. For the century after Daguerre, photography was used, with very few exceptions, to imitate the work of the romantic painters of the same era. Even today, thumbing through the catalogues of photographic dealers, backgrounds for portraiture are show with castles, bowers, and sylvan dells hazily painted in with tempera; an abortive attempt to copy the romantic backgrounds of the English portrait painters. Also most photographic salons today are judged according to standards of painting of the last century rather than purely photographic standards.

The misunderstanding of photography's place in art is due entirely to

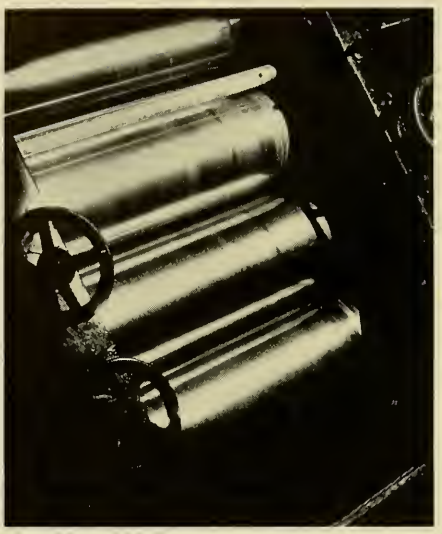


Figure 1
"Paint Mill"
Paul L. Hexter, A.R.P.S.

Figure 2
"Lacquer Making"
Paul L. Hexter, A.R.P.S.

the confusion of photography and painting. Painting and photography are totally different mediums with vastly different technical problems, and great differences in outlook. They are totally different in their purpose, their approach and their results. The standards by which paintings are judged are of no more value to photography than if, conversely, the standards by which photographs should be judged are applied to painting.

It is only logical to expect photography in the beginning to follow the popular conception that it was a substitute for painting. That was the only conception for the better part of the first hundred years. Then Alfred Stieglitz fathered the idea that photography was an art in its own right and that it was not to be used as a substitute for painting. The premises of Stieglitz have been followed and further developed by Paul Strand, Edward Weston, Edward Steichen, and many others until today photography has come into its own as a definite creative artistic medium with its own distinct aims, ideals and ends and the beginning of a tradition. Photography has developed to a point where the photographic function can be explained so that all can understand *why* it can be art, *how* it can be used as an art, and recognize it *when* it is used as an art.

The True Function of the Camera

The structure of all things is studied with the camera. The chemist, physicist, and metallurgist use photography to increase the existing knowledge in their particular fields. The doctor and biologist use X-rays and photomicrography to broaden their knowledge of the human body. In the everyday life of all of us, photography has a profound, although unconscious influence. We are all affected directly, or indirectly, by some form of photographic activity at almost every turn in our routine existence.

Education in all subjects depends greatly on photographic illustration.

Figure 3
"Commercial Photography"
Paul L. Hexter, A.R.P.S.

Figure 4
"Moving Automobiles"
Paul L. Hexter, A.R.P.S.

Newspapers use photography to illustrate factually the sights their reporters describe. Astronomers no longer peer at the heavens through the eye-piece of a telescope. Instead, a camera records and fixes the heavens at a given time for further detailed leisure study. Surrounding all of us are industries, professions and business activities which owe much of their present usefulness to photography, or knowledge which has been gained through photography.

Wherever photography is used, its primary purpose is to increase knowledge in a particular field. It is an additional form of vision, an added way of seeing and perceiving, greatly supplementing our normal vision.

Photographic perception can be used in a number of ways to increase our vision and our knowledge. It can be used for:

1. *Exact perception*, or the fixation of the normal appearance of things as in commercial photography. (Fig. 1 and Fig. 3.) *
2. *Rapid perception*, or the fixation of movement in the shortest possible time as in speed photography. (Fig. 2.) *
3. *Slow perception*, or the fixation of movements spread over a period of time as in a night photograph of a moving automobile where the headlights track across the picture. (Fig. 4.)
4. *Intensified perception*, or the fixation of the normal appearance of things as in microscopic photography. (Fig 5.) *
5. *Penetrating perception*, or the fixation of the appearance of two or more different unconnected things as in photo montage or superposition. (Fig. 7.)

* Figures 1-2-5, courtesy of The Arco Company. Figure 3, courtesy of Farber Inc.

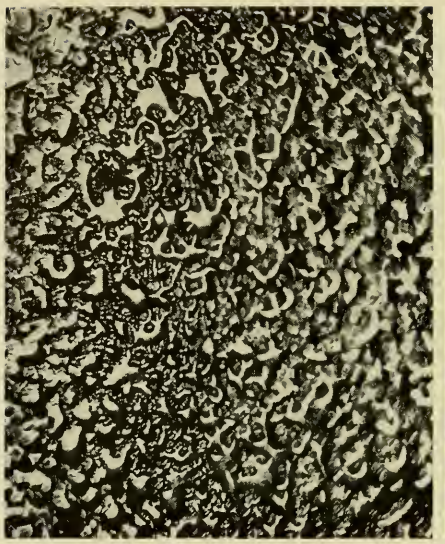


Figure 5
"Paint Surface—Incorrectly Sprayed"
Paul L. Hexter, A.R.P.S.

Figure 6
"Ankle X-Ray"
Paul L. Hexter, A.R.P.S.

Photography then is a means of supplementing our vision to increase our knowledge of the appearance and meaning of things in our organic existence. As this is the ultimate purpose and function of all photography it must also be the underlying fundamental principle on which the use of photography as creative art must be based. In all its manifest applications the one purpose of photography is the same—*to give added vision.*

The Expressive Possibilities of Camera Technique

To most people, and to many art critics, a photographer simply sets up his camera in front of a given scene, clicks the shutter and lets the camera make a record of what it was pointed at. A cow in a cornfield could take this kind of picture if the shutter bulb was covered with honey. Obviously there is no art here for artistic endeavor in any form makes use of selection, emphasis and exaggeration to convey the individualized impression of whatever work is created.

If this were the only way in which the camera could be used, then there would be no argument. However, with study, practice, and knowledge of the medium the photographer finds at every stage of the process the means of selection, emphasis and exaggeration to give him an individual personal product. Just as in all other mediums the degree to which he can use his individuality depends upon his proficiency in technique and his own mental equipment.

While it is universally agreed that in selecting the viewpoint for the camera the photographer has unlimited individual selection, it is also generally thought that once the camera has been placed, the compositional elements of the scene are fixed and unalterable. True the photographer cannot rearrange the positions of all the elements of his composition, as

"Motion" *Paul L. Hexter, A.R.P.S.*

Figure 7

Figure 8

Figure 9

Receding curves from the same viewpoint.

a painter can, but he is able to change the shape of curves, the convergence of parallel lines, the apparent distance of distant objects, the size relation between principal object and background or background objects and foreground.

Figures 8 and 9 show a change in curved lines from the same camera viewpoint. Figures 10 and 11 show a change in converging parallels from the same camera viewpoint. Figures 12, 13 and 14 show the change in background with the principal object the same size. Changes in compositional structure can be made at the individual photographer's will and while they are restricted in comparison to the freedom of the painter confronted with the same scene, painting and photography are not similar forms of expression and the freedom given to the photographer is sufficient for his purpose.* The fact that forms cannot be juxtaposed in photography and they can in painting does not validate the conclusion that therefore painting is an art and photography is not. "Grapes of Wrath" and "Dr. Fu Manchu" are books but they are not similar.

The appearance of any scene under different conditions of light is another form of highly specialized individual selection. True, a camera can be pointed at any object at any time of the day as long as there is enough light with which to make an exposure, but photographs of the same scene at noon in direct sunlight, late in the afternoon with the sun coming through haze, and on a dull day in flat light convey entirely different impressions.

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* A complete discussion of how to use these properties of the camera is in Chapter Three of "MAKE YOUR PICTURES SING." Camera Craft Pub. Co., $3.00.

Receding parallels from the same viewpoint.

Figure 10

Figure 11

The light on any scene at any time is not necessarily the proper lighting to convey the individual's conception of that scene and unless the photographer is working in a studio where artificial light is entirely at his command, he must wait patiently, sometimes for days, until the gods arrange his set. This is another step in the photographic process where selection, emphasis and exaggeration are at the command of the photographer to use as his personality dictates.

Also, in any scene of one dominant color, the rendering of this dominant color as light or dark tones can be controlled by the individual photographer. This is done by using film stock sensitive, or insensitive, to the dominant color, as the case may be. Figures 15 and 16 show the Grand Canyon where the dominant color is red. In Figure 16 the reds are rendered in dark tones by the use of orthochromatic film. In Figure 15 the reds are rendered in light tones by using panchromatic film. Great changes in tone rendering can be accomplished by the appropriate use of film and filter.

Assuming the camera is placed and the light is right, and that indi-

Figure 12 *Figure 13* *Figure 14*

Changing background area while keeping principal object the same size.

vidual selection has determined all of it, it is generally assumed that individuality ends and the picture, with its tone relationships from here on out, is entirely a mechanical product of the camera. True, it is, in the sense that the camera must reproduce tone relationships. But just how these relationships are reproduced is entirely in the hands of the individual photographer, although most people as well as most photographers are not conscious of this fact.

In 1885, P. H. Emerson published "Naturalistic Photography," which is really an art history based on the philosophy of the Impressionists and a complete confusion of the two mediums, painting and photography. He felt that individuality in photography was achieved by direct manipulation of the negative, altered by various degrees of development, chemical intensification or reduction.

Later Emerson learned about the classic experiments of Hurter and Driffield, two English scientists and amateur photographers who first showed the exact relationship between exposure and development. After studying carefully the experiments of Hurter and Driffield, Emerson became convinced that photography could never become an art medium and published a small pamphlet, "The Death of Naturalistic Photography," whose title was surrounded by a heavy black border.

"The limitations of photography are so great that, though results may and sometimes do give certain aesthetic pleasure, the medium must always rank the lowest of all the arts . . . the individuality of the artist is cramped, in short, it can scarcely show itself. The all-vital powers of selection and rejection are fatally limited, bound in by fixed and narrow barriers. No differential analysis can be made, no subduing of parts, save by dodging, no emphasis, save by dodging, and that is not pure photography. Impure photography is merely a confession of limitations."

Emerson was perhaps the first photographer to become convinced that photography was not an art. He was also the first to recognize the work

Figure 15. Panchromatic Film

Figure 16. Orthochromatic Film

of Alfred Stieglitz, then a young man who had learned photography in Germany. It is a strange coincidence that Emerson should have singled out the work of Steiglitz who intuitively recognized the limitations of photography but, unlike Emerson, refused to become discouraged by them. Emerson also first coined the phrase "pure photography."

Modern Camera Technique

If Emerson lived today, he would no longer feel the individual powers of selection bound by narrow barriers. The tremendous progress in the development of photographic materials was undreamed of when he worked but today the photographer has at his command the individual latitude in recording tone relationships that Emerson was seeking. This control, instead of taking place during the processing of the negative, is determined at the time of making it, by a correlation of all the factors that influence the quality of the negative, namely, film stock, exposure, color sensitivity and development.* The individual latitude Emerson wanted in the photographic process exists today but not at the point where he sought to exercise it.

Wide differences in the rendering of the same subject, under identical conditions of light are within the power of the photographer if he is sufficiently proficient in technique to use it for his individual purposes. Certain tones can be rendered light in one picture, dark in another. Tones can be widely separated in one case giving exaggerated detail, compressed in another giving an impression of smoothness.

Within the photographic process itself are the means for controlling the manner in which tones are rendered. It has not the freedom of line that exists in drawing, but a freedom of another sort, and it must always be remembered that photography and drawing, or painting, are not comparable mediums. Photography is a true creative medium in itself and must be valued for its own original possibilities, not because it is possible with it to imitate other mediums.

When George Eastman perfected the roll film, photography came truly within the reach of all. With a simple Brownie and the aid of the corner drugstore, results are obtained by anyone who can point a camera at some bright subject, keep it steady and click the shutter. It may seem hardly worth while to study the principles of photography in the serious way in which one studies the playing of a musical instrument, when it is so easy to take a picture, but there is a world apart between taking a picture and making a picture.

For the person willing to study and master the medium, photography is a modern creative medium in which there are vast unknown vistas to be explored. Because of its newness, the ways of creative work truly within the medium are not clearly mapped out. It is a paradise for an original creative artist. It is also a paradox for it is at once the easiest medium to work in and the most difficult; easy because of the simplicity in making just a record; difficult because of the difference between a record and a work of true merit.

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* See "MAKE YOUR PICTURES SING"—Chapters on negative-making.

The Photographer And The Model

Al and DeVera Bernsohn

Part II

THE Chicago fashion photographer, Gordon Coster, invariably introduces some sort of contrast in subject matter into his illustrations. Even when the picture is of a single model, he poses her so that there is contrast between the position of the body and that of the head. He avoids a stiff, solid body pose by picturing it as representing a number of "planes." These are most attention compelling when they run into each other at sharp angles; they are represented by feet, legs, thighs, trunk, head, upper arms, forearms and hands.

Sharp angles usually represent youth and athleticism. Graceful curves indicate femininity. Lack of either, an unbending, square sort of pose, shows extreme formality, immobility. Whatever the pose, it should be in perfect harmony with the model's expression, lest the results be immediately condemned as phoney.

An excellent example of eye interest gained by placing the "planes" of the body in extreme contrast to each other is Fig. 9. Here, against a background perfectly suited to the type of girl the model represents, Coster has apparently exaggerated to an extreme the angles of "plane" intersection. yet the results are most attractive.

If you watch a few friends lean, twist, turn and bend for awhile, your ideas about the possibilities of posing portrait subjects will be widely extended. This helps with male subjects almost as generally as with girls.

Often the degree of contrast between the "planes" of the body is

Figure 9 *Gordon Coster*

Figure 13 *Gordon Coster*

influenced by the setting, costume of the model or the properties. The costume in Fig. 9 is youthful, rugged looking; that in Fig. 10 is far daintier, hence the more feminine, less angular pose.

Fig. 10 furnishes an excellent study of contrasts between the soft silk jersey of the dress and the hard granite of the background. This type of contrast is also a strong attention gripper. The girl in the expensive fur coat traipsing among rough tree barks in the woods is much more noticeable than the one in the hiking suit, no matter what you might think of their comparative intelligences. Texture contrasts appeal to the tactual senses of the observer, bringing photography beyond a solely visual medium.

Draping is an aid in accenting textures. A flat sheet of any material is uninteresting and not easily identified. Drape it gracefully and it becomes much more attractive. Of course the principal draping has already been done by the dressmaker, but the photographer may assist her by lighting to show the surface treatment, transparency, delicacy or cut of the fabric, and by selection of a favorable pose for the model. For example, he may ask her to lean slightly backward and twist a little to one side or to place one leg before the other.

Background contrast may be in tone (to prevent the subject blending into the background), in texture (to enlist the tactual senses in creating

Figure 12 *Gordon Coster*

Figure 10 *Gordon Coster*

Figure 11 *Gordon Coster*

subject interest), in suggestion (a shadow on the wall, a hint of locale), or in subject matter. By creating a scene of activity, the model is placed much more completely in the picture and is given something to do, a reason for her expression. Fig. 11 was made for one of the most exclusive fashion houses in the country and set in front of a real grocery store with an actual grocer completing the picture. The only change from the natural setting was the shifting of the bunch of bananas from the left to the right side of the scene. The tonal contrast of the girl's costume helps her dominate the picture.

Here, too, is extreme variation between the persons in the picture. Ordinarily it is not found as strongly as this. For example, in Fig. 12, a bride and her bridesmaid might well compete with each other for interest of the observer. A distinction between them is caused by the brighter costume of the bride, more illumination on her, placing her to the front of the other girl, and, most important, by the difference in their expressions. The bridesmaid is looking at the bride. The bride has a stronger, much more definite facial expression.

Pose is important in securing contrast between persons in a picture and of centering interest. Fig. 13 shows three girls, but the one seated, by her more angular position and the fact that the other two are looking at her, dominates the illustration.

But all of this contrast, of pose, texture, background, or between persons in pictures, must be plausible to prevent the observer sensing any artificiality. A certain coherence, a completion of a mood, is essential to a unified picture. The college girl fits nicely against the background of a leafy campus. Delicate shadows furnish the background for the bride.

Figure 14
Gordon Coster

Coster says he has no set rules for lighting because of the speed with which new lighting equipment is being introduced. He is taking an increasingly larger percentage of synchroflash pictures since this method gives the photographer greater control over his results. Fig. 11 was taken with synchroflash, permitting him to utilize sun on the scene from the left front of the picture and a flash fill-in from the right front. For outdoor pictures he says it is almost ideal. It gives the photographer better control over tonal range, lets him use sun from almost any direction without harsh shadow effects, and gives him sharper pictures by permitting increased speed and stopping down the lens. It also helps the model assume a natural expression by causing less eye strain. The synchroflashed Fig. 14 was one of several pictures of the same subject taken under various types of lighting, but this gave the most natural modeling of features and the most accurate color interpretation.

He seldom uses direct sunlight alone. Silver reflectors fill in shadows more softly than synchroflash and still eliminate much of the harshness commonly found in sunlit pictures. These added detail to shadows in Figs. 9 and 10.

A silver reflector furnished the principal source of illumination in Fig. 15. It was taken at noon on a sunny day. A garden hose was turned on the subect and a reflector placed almost directly behind her caught the play of the water and the transparency of the raincoat. The girl was standing in the shadow of a brick wall and natural daylight furnished the front lighting.

Figure 15
Gordon Coster

For indoor photographs Coster uses photofloods in various types of reflectors most frequently and only occasionally resorts to large incandescent lamps or arc lighting. If they are to represent outdoor scenes he puts the major lighting high and in a single bank to represent sunlight. For the indoor studio type pictures, however, he distributes the lighting so that it best fits the purpose of the picture, since, he believes, few observers question the logicality of lighting arrangements as long as strong conflicting shadows are not shown.

In Fig. 16, which, incidentally, demonstrates texture rendition nicely, a number of photofloods were placed to the right and to the rear of the subject, some high and some low. This caught the gleaming folds of satin and shone through the delicate tracery of the veil. A soft, weak front lighting was used to keep the key of the picture from going too low and to prevent too strong contrast. The background was separately illuminated from a single light source and leaves were placed between the background and the light to arrange the shadows so that the wall was brightest behind the veil and also to create an interesting pattern on the background.

Finally, Coster warns photographers to be most discreet in selecting filters for use in taking pictures of models. A strong red filter which makes the sky turn beautifully dark may also make the lips white. And a filter of the wrong color may completely change the patterns in the clothing.

Figure 16 *Gordon Coster*

Figurines As Teachers

William S. Davis

Part VI. Size and placement of a figure in relation to the picture space.

THE selection of the angle of view or choice of attitude, lighting, background, and good technical rendition are all important steps in the making of a satisfactory photograph, but there are other things as well that need to be carefully considered. Among them is the one sometimes called *spacing* or *space arrangement*. By this is meant the manner in which the total area of a picture is divided or broken up by the forms of objects and the spaces around them as defined by varying tones.

The attainment of an agreeable effect, and good balance in the composition, depends in large measure upon successful space division, as obtained by the placement and relative size of the various masses that collectively fill the area bounded by the margins of the picture. In a portrait or figure piece, for example, the model may occupy too much or too little space, or, if the size is satisfactory in proportion to the total area of the picture, it may be badly located, causing too little space between figure and margin in one direction and too much in another, thus upsetting the balanced disposition of the masses.

Many times the beginner, absorbed in solving other problems, overlooks the one we are now considering, and in consequence it is not uncommon to see an otherwise pleasing portrait with the head up in one corner, or far over to one side, with nothing in the way of balancing material to account for such an out-of-the-way location. Or, again, the size is either too large or too small to fit well the space in which the head or figure is placed. More experienced workers are less likely to make glaring errors of elementary character, yet, even so, it often requires a nice sense of proportion to determine the precise size and placement of the principal element in its setting, for no iron-bound rules can be formulated, owing to the many combinations that can occur in the factors involved, to say nothing of the particular impression it is desired to produce. But for this very reason, more can be learned by practical experimentation than by the study alone of theoretical ideas, and for working purposes a figurine makes a very useful and uncomplaining model, supplemented when need be by a

Figure 1

Figure 2

few simple accessories, such as may suggest themselves as the experiments progress.

Our first illustration brings out several errors of a compositional nature, notwithstanding that the rendering of the figure is quite satisfactory as regards viewpoint and lighting. In the first place, the image of the figure is too small for the amount of blank space surrounding it, and secondly, it is directly in the center of the picture, thus dividing into equal parts the background area on either side—which constitutes a monotonous subdivision of space.

As already intimated, the proper size of an object, relative to its setting, cannot be determined by arbitrary rules, because for one thing the character of the setting plays an important part in the effect produced. In this example, the uniformity of tone and absence of any detail in the background tends to diminish the apparent size of any isolated object such as the standing figure here shown. And this effect would be more pronounced were the tone of the background either as dark as the shaded parts or as light as the lighted parts of the figure. Such a result is accounted for by the fact that when any considerable portion of an object merges into the tone of its surroundings, the prominent parts that remain are correspondingly reduced in area as compared with the total bulk of the object. When the setting or background is broken up into a number of varied shapes and tones, such as is to be expected when a landscape setting is employed, or an interior showing furnishings and architectural details is used, a figure may then occupy harmoniously a much smaller space in the picture. It may still serve as the main feature of interest, provided the component parts of the setting are sufficiently well related as to avoid competition with the figure. This point suggests the opportunity for further study by building up different settings which may serve as agreeable space-fillers.

Figure 3

Figure 4

Figure 2 represents the opposite extreme as to size, that of crowding the figure by leaving insufficient space above and below it. The space division is also unbalanced, as the amount at the right is excessive by comparison with the lack above and below. In catalogue or other illustrations of objects the omission of surrounding material is of course frequently justified, but such work lies outside the present discussion.

Figure 3 shows a figure of suitable size for the plain space surrounding it, but badly placed in the lower left corner, thus causing a very unsatisfactory division of the background area.

Figure 4 presents a figure of the same size as in Figure 3 and equally badly placed, but this time too high and too much toward the right.

Figures 1 to 4, inclusive, are by no means exaggerated examples of unsuitable size or misplacement. Those who have occasion to examine the general run of work come across more pronounced errors in arrangement, but my purpose is to show the damage done to the effectiveness of presentation by quite ordinary mistakes.

Figure 5 shows what may, I think, be regarded as a figure of appropriate size for the picture-space, taking into consideration the tone and flat expanse of the background. The figure is a little to the left of the center, thus giving diversity to the background space on either side, with the greater space on the side toward which the figure is turned. More space is allowed above the head than below the base on which the figure stands (the base has to be considered because of being similar in tone to the figure), which spacing best balances the strip of dark tone at the bottom of the picture, representing the "floor." Moreover, diversity of spacing is secured all around, since the separation between model and margins is not duplicated at either side, top or bottom. There is nothing novel in all this—

Figure 5

Figure 6

instead, it is just a simple illustration and analysis of proportionate spacing, such as can be found in many masterpieces of art, and which have come to be developed as principles because they are the outcome of practical workers' experiences.

In Figure 6 we have an example of what some simple accessories may do in determining the suitable placement of a figure, relative to the margins. The shape of this photograph is a bit nearer square than Figure 5 and several of the others, so on this account the figure is much nearer the left margin than would be desirable were the surrounding space entirely plain. However, since such is not the case, we can observe the balancing effect produced by the introduction of the "furniture" at the right, which, by the way, consisted of a small polished walnut-wood box set on edge to suggest a dresser, together with a narrow picture frame with plain glass to serve for the "mirror." The dark tones of the box and frame unite with those of the "floor" to form a connected mass filling the lower, and most of the right-hand, portion of the picture to balance the larger area of middle-tone in the background, the area of the latter being reduced to the extent of the surface covered by the other material present. In locating the figure, care was taken to vary the amount of background visible on either side, the wider space being allowed on the marginal side to keep the figure better united with the "dresser." The light tone-spot created by the "mirror" and the one formed by the bowl on the dresser (in reality a very small water-color mixing cup) serve as notes to balance the light tones in the figure. To concentrate better the attention upon the upper portion of the figure and general central area of the picture, a piece of card was so placed between light-source and figure as to reduce the intensity of illumination near the base of the composition.

How To Expose Kodachrome At The Fairs At Night

J. T. Mullin

THE night lighting of the two fairs again to be presented in this country this year offer excellent opportunity for the use of automatic interval timers. The colorful illumination of the exteriors of most buildings are especially beautiful subjects for color film but unless the amateur movie maker has some means of prolonging the exposure of individual frames of his film there is little chance of proper registration even of the most brilliant floodlighting. Illumination of average intensity will not, in most cases, register at all satisfactorily on Kodachrome, even with an f 1.9 lens at normal or half speed.

Given a camera which can be hand cranked or spring driven under control of a trip which allows the shutter to remain open on each individual frame for any interval desired, the next problem is to assure uniform exposure of each frame so that any series of frames comprising a "shot" will be of constant density.

Since, in order to give a projection time of ten seconds a scene must contain 160 identically exposed frames it is readily seen how difficult it becomes to turn a hand crank or release a "bulb" button at a rate uniform enough to assure flickerless pictures. The greater the exposure time required for individual frames, as determined by the lighting available, the more difficult it becomes to maintain a sense of perfect timing. The author has found that in photographing the night lighting at the Golden Gate International Exposition it is necessary to expose individual frames from one to five seconds at f 1.9 in order that the faintest colors may register, if type A Kodachrome is being used. Pictures taken with a hand cranked Ciné Kodak Special have proven quite satisfactory on brighter subjects where a relatively fast rate of cranking could be followed. On lighting requiring more exposure, however, a bothersome flickering was very prominent due to the variations in rate of cranking.

The answer to the problem of uniform exposure is found in the automatic interval timer, which may be adapted to practically any camera with little or no modification in the camera itself. Being a device of relative mechanical simplicity in any form the interval timer may be home constructed along one of the following practical lines. These are, in the order of discussion to follow, an electrical method of controlling the regular spring drive; a completely electrical

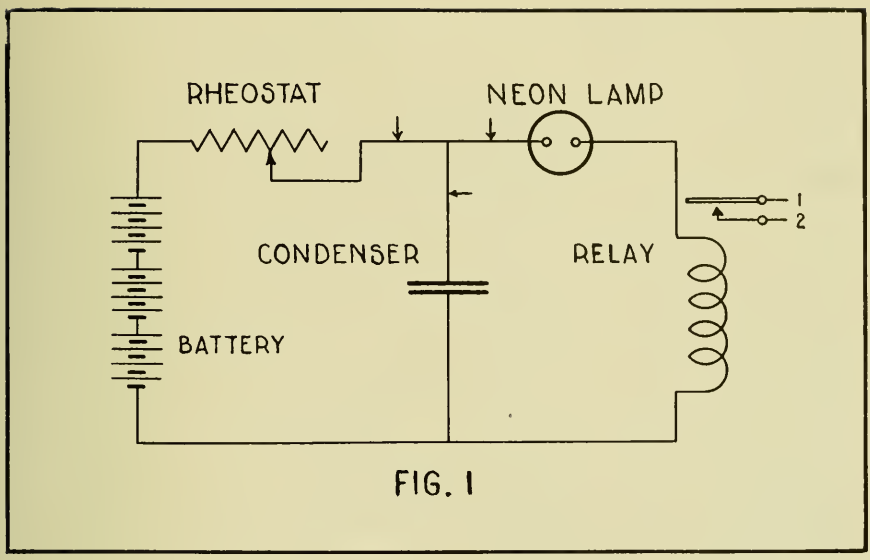


FIG. 1

drive; and a supplementary mechanism to retard the normal mechanical drive.

The first has the advantage of being highly portable, easily adjusted over a wide range of exposure time, and of permitting the making of a shot in approximately one-half the time required by the other methods. While it involves assembly of a few radio parts it is mechanically simpler than the other two and the electrical circuits will not be found difficult to understand and follow. Timing is accomplished by the electrical circuit which sends carefully spaced impulses to a mechanical release, the latter device allowing the camera spring to step the film forward frame by frame.

Briefly the operation is based on performance of what is known as a "neon oscillator." Referring to Fig. 1 it will be seen that this consists of a battery, a rheostat, switch, condenser, neon lamp and a relay. The battery is actually three small portable radio "B" batteries in series connection to supply 135 volts. These, when the switch is closed, send current through the rheostat to the condenser, which slowly builds up a charge or voltage across its terminals at a rate determined by the amount of resistance in the rheostat. The less resistance the faster the charge builds up since it can flow more readily from the batteries to the terminals of the condenser and conversely, the greater the resistance, the slower it appears across the condenser. It will be observed that the neon lamp is connected across the terminals of the condenser, in series, of course, with the coil of the relay. Actually, however, the lamp is not a conductor of electricity below a certain voltage so that until the voltage across the condenser reaches a certain very critical value in its gradual rise the neon lamp is the equivalent of a switch with its contacts open. When this voltage is reached, however, the lamp becomes quite conductive and is the equivalent of closing the switch. As it becomes conductive, or "ionizes" it gives a flash of pinkish light and the current flowing through it, actually the charge of the conenser, also flows through the coil of the relay. Since the condenser discharges its voltage through the neon lamp it soon

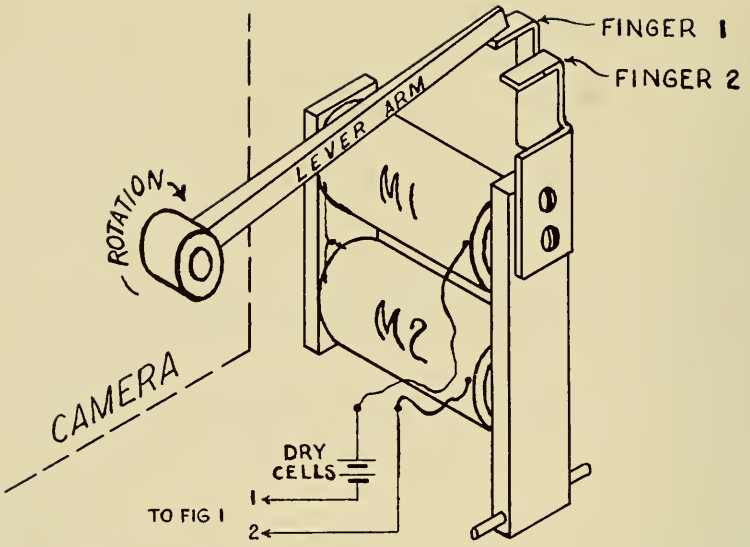


FIG.2

has none left and the neon lamp has no longer a source of current supply. It therefore becomes extinct and "deionizes." Immediately current stops flowing not only through the lamp but also through the relay, and the condenser begins anew to build a voltage across its terminals again to repeat the cycle.

While the current was flowing through the relay coil it caused the armature to move magnetically and close the contacts indicated by 1 and 2. When this current ceased, which it did a fraction of a second later, these contacts again opened. The operation of these contacts, which is carefully timed by the oscillator circuit just described, is useful in controlling a circuit to the electromagnets shown in Fig. 2.

The electromagnets are merely part of a slightly modified buzzer or door bell. The principal change is the addition of a mechanical finger device, details of which will vary somewhat with individual cameras. In a camera of the single frame per turn crank type, a lever, Fig. 2, replaces the hand crank and is readily fastened to the shaft by means of a thumb turn or setscrew. The addition to the buzzer consists of a single strip of brass cut and bent to form a sort of escapement of two fingers F1 and F2.

In operation the camera drive spring tends to rotate the shaft in the direction indicated, but the lever, normally resting on Finger F1 prevents the camera mechanism from running, keeping it with the shutter open for the time exposure. When the magnets M1 and M2 are energized by the relay the fingers shift slightly and the lever steps from F1 to F2 which prevents it from turning further. When the magnets de-energize upon release of the relay contacts the fingers shift back to their former position and the lever steps free of F2. It is then free to rotate through almost a complete revolution to again come to rest on F1. In so revolving, it closes the shutter, advances the film one frame and again opens the shutter to expose the newly registered frame.

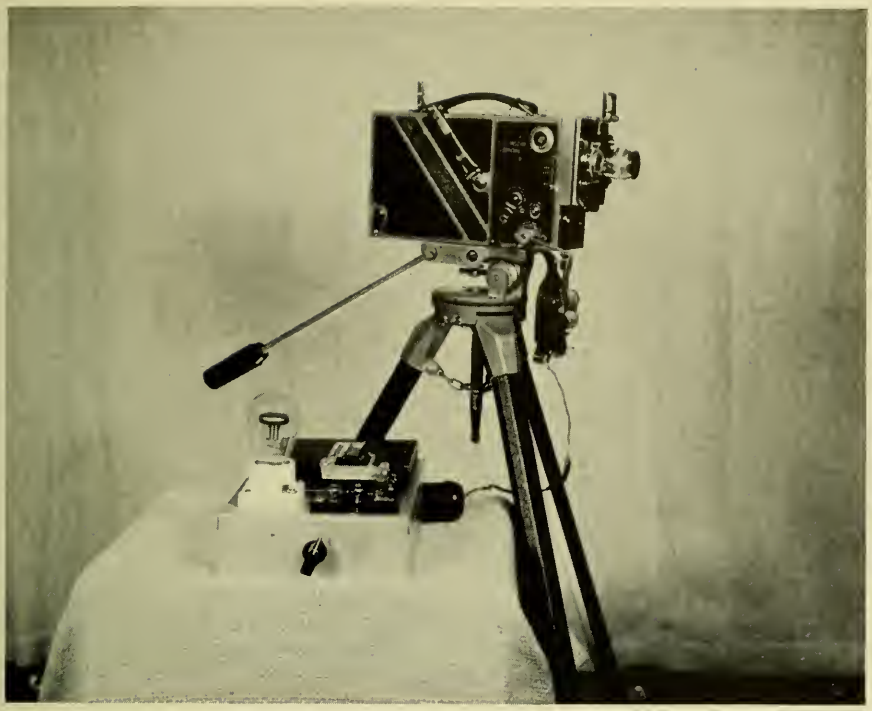


Figure 3

With a camera of the type having a "bulb" control the magnets may be readily arranged to trip the release button when they are energized, terminating the exposure period of one frame and bringing the next into exposure. In modifying other cameras having no inherent means of stopping the mechanism with the shutter open it may be possible to either extend through the case a shaft which makes one revolution per frame or actually construct miniature escapement magnets and fingers to be mounted within the case itself acting on some such shaft. In any event in attempting to modify a camera for such control the fundamental escapement design shown in Fig. 2 should be followed in principle, since it gives positive control with the electromagnets de-energized at all times except when a change of exposure from one frame to the next is about to take place.

At the end of each scene it is only necessary to release the regular exposure control button on the camera to stop the film with the shutter closed. The equipment can be set up in a new location, the period of exposure adjusted by the rheostat until the clicks of the escapement occur at the desired intervals and the button again pressed and locked in place whereupon exposure begins anew.

As shown in Figs. 1 and 2 the magnets M1 and M2 must be energized by dry cells. The number of cells, series connected, which will be required for proper operation of the escapement must be determined by trial. The number will be established by the resistance of the coils, spring tension in the armature, normal distance of the armature from the magnets and most important, by the amount of friction between the lever arm and fingers. In any event the cells can be

either the flashlight type or the "Little Six" size, the former where extreme portability is desired and frequent changes are not objectionable.

A timer of the type just described, used in conjunction with a Ciné Kodak Special is illustrated in Fig. 3. The controls are shown removed from their carrying case which normally houses all batteries as well. A cord with separable plug leads to the escapement magnets. These magnets with their associated equipment are suspended in front of the camera by means of a plate fitting between the bottom of the camera and the tripod head. Thus no attachments or changes in the camera itself are necessary whatsoever. The escapement adds negligible weight to the camera and tripod while the control box with all its contents weighs but a few pounds.

For those interested in constructing a similar device in accordance with the plans given herein a complete list of parts will be found at the end of this article. If difficulty is experienced with the neon lamp remaining conductive after discharging the condenser as attested by a faint pink glow persisting steadily after the first flash, this may sometimes be remedied by trying other lamps or reversing the polarity of the lamp, i.e. reversing the connections to the lamp socket. If either of these suggestions does not solve the problem it may be necessary to remove the protective resistor in the base of the lamp. This may be done by softening the cement in hot water and carefully removing the base so as to make connections directly to the wires leading into the glass bulb. Elimination of this resistance will generally clear up the trouble. A last trick which may help is to connect a condenser directly across the terminals of the relay coil. The proper size can best be determined by the trial and error method since it depends on several variable factors. It is important that the control be kept in a dry place and that the wires pointed out by the arrows of Fig. 1 do not come in contact with any other wires or the mounting board, screws, or brackets. They must, in short, be kept very well insulated as any poor insulation here will cause unsatisfactory operation of the oscillator circuit.

The second method of driving a camera so as to uniformly expose all scenes is to employ a small battery operated motor with gear box to reduce the speed of rotation from that of the motor shaft. The slow speed shaft can then be coupled to the shaft of the intermittent or shutter of the camera. Since a good battery operated motor will run quite uniformly, such a drive will give satisfactory exposure. Since the motor uses power from dry cells continually while a scene is being photographed, several of the larger size cells are generally required for satisfactory performance. The speed of such a motor may be controlled through certain limits by means of a rheostat in the battery supply lead or by changing the number of cells used to drive it. In any event, however, the range of control is considerably limited and the camera mechanism, in constant motion at a slow pace exposes the film rather inefficiently since up to fully half the time of operation the shutter is keeping light from the film, thereby prolonging the overall time required to photograph a scene quite substantially.

The last method which may be employed is one which, while similar in many respects to the electric motor drive, uses the spring motor of the camera itself to run a supplementary governor, which may be salvaged from an old spring driven phonograph motor, to hold down the speed of the camera. This form of drive offers the least advantages from the standpoint of ease of control since the governor is seldom driven with sufficient power by the camera motor to

exercise much control. Such a device will often work satisfactorily at the faster speeds of one or two frames per second but even then will generally demand manual assistance in starting due to the inertia of the governor itself and the relatively weak power of the spring when geared up to the degree necessary under such conditions. This form of drive, while requiring careful alignment of the camera with the supplementary governor does have the advantage of not requiring any batteries or wires for its operation. Its performance can be greatly improved by the addition of a large crank which can be turned with considerable force by hand, allowing the governor then to retard the power applied to the crank as well as that supplied by the camera.

No matter which form of drive the amateur chooses to prolong the period of exposure of his individual frames he is confronted with the problem, in most cameras, of extending shafts through the camera case, or of adding escapement controls within the cases themselves. For all round flexibility and ease of operation it is strongly recommended, therefore, that he construct his interval timer along the plans of the neon oscillator type outlined herein.

Parts List for the Neon Oscillator Interval Timer. All parts usually available at radio parts stores.

1 3-watt 115-volt Neon Lamp.
1 Porcelain Lamp Socket.
1 Eby type ER-12 relay, 5,000 ohms.
1 IRC, 1 megohm potentiometer.
1 Toggle Switch.
1 4 Microfarad, 600-volt paper condenser.
3 "Mini-Max," 45-volt portable radio "B" batteries.
Metal Chassis and Dry Cells as required.

Questions and Answers

Question: What causes occasional pink flashes on my 8mm. Kodachrome films?

Answer: Light fog in loading and unloading the camera is pinkish or amber in color and can be eliminated by loading and unloading in more subdued light. Take the camera indoors or throw a coat or blanket over the camera. Loading should never be done in light strong enough for photography.

Question: My pictures are quite unsteady even when I use a tripod. How can I tell whether the camera or projector is at fault?

Answer: If you project your films with the frame line or division between frames in view, the fault can be readily placed. If the frame line varies in thickness, the camera mechanism is at fault. If the frame line remains constant in thickness but jumps up and down bodily, the projector needs attention.

Question: My camera occasionally gives a jump as if the spring suddenly uncoiled. Is there any way to correct this without sending the camera to the factory for overhaul?

Answer: When a camera has not been used for some months, the grease with which the spring is packed hardens, causing the spring to give a kick now and then. If the camera is repeatedly wound fully and then run down, the grease may work around and eliminate the trouble. If such treatment does not work, send the camera to the factory. Never attempt to get into the spring for oiling or adjustment.

First Award—Advanced Class *H. Cooper, Los Angeles, Calif.*

■ It is true that pictures which present unpleasant subject matter have a harder time getting by on their true merits than is otherwise the case. It is also true that that quality in subject matter has no legitimate bearing on whether a picture is good or bad. The only quality of subject matter which properly has a bearing on the merit of a picture is the interest value. Here is a picture which reminds us of something seen during a particular hair-raising nightmare —yet it is undeniably a very good picture. The purpose of the picture is to shock and horrify and therefore the more revulsion it engenders the better it is.

The picture must have been staged and yet every element of it seems so true—so devoid of artificiality that anyone unaware of photographic limitations might easily be convinced that it was a "grab" shot. The introduction of the rain and the partially obscured windows is a fine stroke of artistry, for these add immeasurably to the effectiveness of the picture. This device

(continued on page 254)

Second Award

Advanced Class

"The Citadel"
H. W. Wagner,
Worcester, Mass.

■ Mr. Wagner was faced with a very difficult problem here for it is no easy matter to achieve a successful organization of such a large and variegated mass of ice as is shown here. His solution was achieved, as all can see, by waiting for a lighting which created a pathway of light through the picture and at the same time established a point of emphasis in the brightest lit clump of icicles at the top center of the print. The pathway of light sets up a simple movement of the eye which swings in from the lower right toward the left center and then upward to the point of greatest emphasis. This movement is not very strong, in fact is just enough so as to bring order to the composition. In this case that is desirable, for we do not wish the eye to be too strongly held. Rather it should be free to roam about and enjoy the myriad bits of interesting detail and texture in the infinitely varied ice forms. The light sprinkling of fresh snow is a further element which adds to the interest value. The technical excellence of the print brings the ice and snow textures out very beautifully, and it is plain that this clarity of rendition is essential to the success of the picture.

Data: 9″x12″ cm. Voigtlander Tourist; 15 cm. Heliar; F:4.5; 1/100th sec. at F:22, by sunlight at 11 A.M. in January, Weston reading 500, no filter; Agfa Superpan Press in D-76; 11″x14″ print on Agfa Brovira Kashmir White, medium in D-72. Photographer's Comment: "A comparison exposure with a yellow-red filter yielded a negative judged to be too harsh."

Third Award

Advanced Class

"A Sunny Day in Pittsburgh"
Victor Pokorny,
Arnold, Pa.

■ This picture does succeed in establishing a mood of peace and quiet through the play of light on the smooth undulating surface of the river. The industrial scene beyond, however, does not really fit into that conception as fully as might be desired. We can imagine for example a more effective rendition of such a mood in a pastoral setting. Some may feel that it is possible to imagine that the picture is taken at the end of the day so that the industrial scene might suggest a time after working hours and thus fit into the mood more satisfactorily. That may be possible for some but it is asking rather a lot of the observer. Apparently Mr. Pokorny felt something of this for he has given a somewhat sarcastic turn to his title. We hardly think that is justified, however, for there is nothing in the picture itself to warrant it. Perhaps the scene is smoky, but if we are to comment on the smokiness of Pittsburgh in pictorial terms, smoke itself must play a much more important part in our picture than is the case here.

Data: 11″x14″ bromide print.

"*At the Fountain*" *Ante Kornic, Jugoslavia*

Fourth Award

Advanced Class

■ It is interesting to notice what a great amount of emphasis is placed upon the important part of the action here by the low, concentrated lighting and by the small amount of diffusion. The diffusion heightens the effect of the lighting by giving it a shimmering quality which is most attractive in this connection. It is well to observe three things about the diffusion here. First, it is a restrained diffusion, which preserves reasonably good definition. Second, it is diffusion introduced at the time of exposure, in this case by the use of a Duto diffusion disc a device similar to the Eastman diffusion disc. Diffusion introduced during printing would be very different in quality. Three, the romantic nature of the subject matter combined with the lighting makes diffusion appropriate here. As a general thing diffusion is only successful when the treatment and circumstances mentioned are judiciously combined. Observe how nicely the tree on the right balances the weight of the figure. Without it the spacing would have to be altered considerably. And finally, of course, the quality which makes the picture attractive, is the way in which the photographer has captured the feeling of the early morning and the delight of the first drink.

Data: 6″x6″ cm. Rolleiflex; Zeiss Tessar F:3.5; 1/25th sec. at F:7.5 on E. K. Panatomic, with Duto 1 diffusion disc.

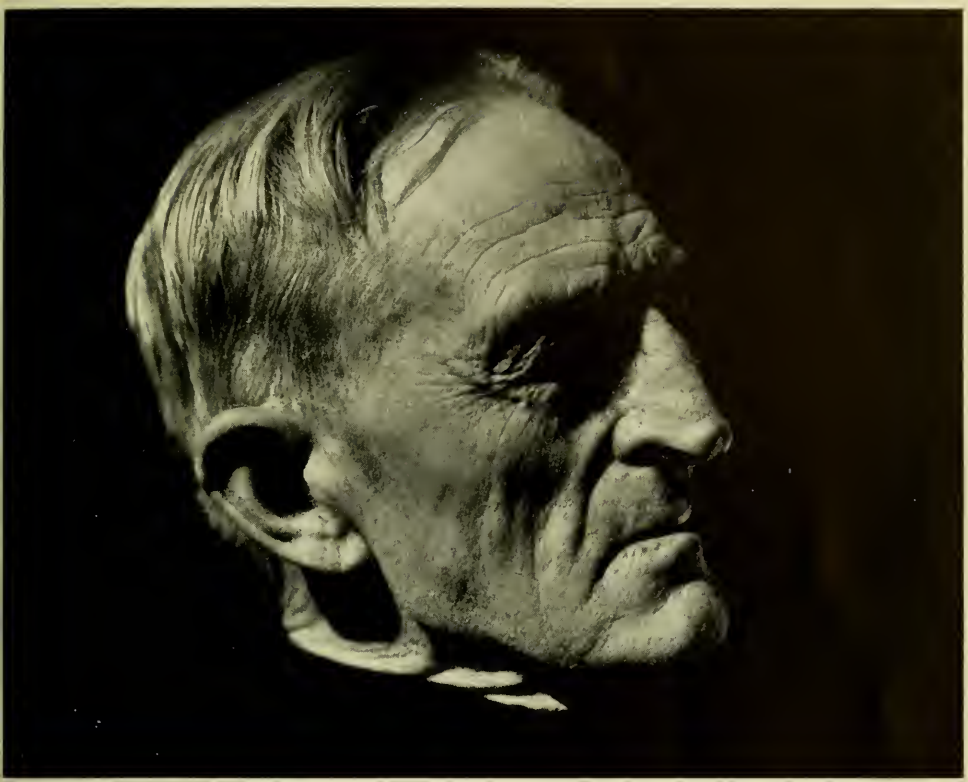
"*Lazy-bones*"
Jack C. Sparks, Los Angeles, Calif.

Fifth Award

Advanced Class

■ For us at least, this picture tells of the loneliness which assails the night worker in the early morning hours when activity is at its lowest ebb. Notice the principal factors which combine to produce this impression. The large dark area in the upper left; the absence of detail in the face which wipes out personality and gives the figure an aloof and isolated appearance; the emptiness of the push-cart and the attitude of the figure which suggests a long and tedious period of waiting. We seldom attach much importance to titles. They are sometimes a positive help when they serve to give a humorous twist to a picture. Most often they are just neutral, but occasionally they are a detriment when they miss the true feeling of a picture, as seems to be the case here. We do not get any feeling of laziness from this picture, but rather one of loneliness, consequently the title gives one the impression that the photographer has failed to fully appreciate his own picture. It is easy to see how this happens. The photographer has selected his title from his impressions at the time of shooting. The eye would see expression in the face and the photographer would be aware of other activity surrounding this scene, but none of these things come through in the print. Consequently, the feeling in the picture is quite different from the photographer's impressions at the time of exposure. We must, therefore, make our title conform to what can be seen in the print.

Data: 2¼″x3¼″ Speed Graphic; Zeiss Triotar lens; 10 secs., at F:16 on E. K. Super XX in Vitol; 11″x14″ print on Defender QL in D-72; tabloid blue toner.



First Award—Amateur Class *L. B. Ziegler, Alhambra, Calif.*

■ We know it is dangerous to estimate the abilities of a photographer on the basis of one print, but this picture shows such strong evidence of exceptional talent that we are promoting Mr. Ziegler to the Advanced Class forthwith.

This department has laid great stress upon the importance of deriving treatment and composition from the implications of the subject matter. It is only through such insight that the photographer is able to present his material with maximum effectiveness. To put this another way. The picture-maker must learn to recognize the most effective pictorial elements in his material and then know how to play these up for all they are worth. That is exactly what Mr. Ziegler has done here. He has "seen" the strongly defined planes of the head; the rugged sculpturesque qualities of it; the sharp, alert mind; the cynical outlook. He has arranged his pose, lighting and composition to make the most of these qualities, and has succeeded to a remarkable degree. The vertical extent of the base material supporting the head is kept at a minimum, but it is carried entirely across the print. This gives it a maximum of supporting strength and conforms to and justifies the horizontal format. The strong lighting emphasizes the ruggedness of the face, brings out good skin texture, and establishes the third dimension most effectively. The pose, takes full advantage of the interesting profile and other rather unusual aspects of the head. The expression is enigmatic. This is in keeping with the sculpturesque treatment of the head, but note how subtly the slight curl of the lip suggests a cynical attitude.

It may seem picayunish to find fault with so fine a portrait as this, but we learn more by seeing slight weaknesses in good work than by detecting glaring errors in bad pictures. We see two possibilities for improvement. The folds in the neck have caught the light so strongly that they constitute the highest lights in the picture. These highlights should be toned down considerably. It is unfortunate that a faint outline of the far cheek is seen beyond the mouth, and this interferes with the contour and structure of the mouth. This should have been taken care of at the time of shooting by slight alteration of pose or camera angle, but it can be corrected by judicious retouching.

Data: 9½"x12" print.

Second Award

Amateur Class

"Abandoned"
Walter C. Ross,
Springfield, Mass.

■ In this picture we can feel the clarity of the atmosphere and the imprisoned stillness which the grip of winter imposes. There may be some who feel that the amount of space on the right is too great, particularly so, since the essential elements of the picture are concentrated on the left. We must appreciate, however, that a considerable amount of space about the central object is necessary to this picture in order to maintain the feeling of isolation in great space, which is the central idea of the mood which is presented here. If objects which are not visible in the picture did not interfere it might be possible to adjust this condition a little by adopting a camera position just a bit to the right and arranging a composition with the same amount of space about the central image, but with a little more on the left and a little less on the right. The central image would still need to be left of center, of course. Such an adjustment would cause the tracks in the snow to move in a more diagonal direction, and this would be an advantage, since those toward the center now run in, rather directly.

Data: 2¼"x2¼" Zeiss Super Ikonta B; 8 cm. Zeiss Tessar, F:2.8; 1/200th sec., at F:16, on Agfa Superpan Press; 11"x14" print on Defender Velour Black glossy, in D-55, gold toned.

Third Award

Amateur Class

"Tod"
Richard Rundle,
San Francisco, Calif.

■ This is a splendid example of the portrait technique which William Mortensen has brought to such a high degree of perfection. One really has to see an original print to fully appreciate the beauty of the very subtle modeling. The shadow between the lips is too strong and has apparently been dodged in. This makes it rather pop out, and it is also apparent that the structure of the mouth has been violated in the dodging operation. If dodging is necessary it should be considerably modified here and the full contour of the upper lip maintained.

Data: 3¼"x4¼" Graflex Series D; Kodak Anastigmat F:4.5; 1/10th sec. at F:6.3 on Agfa Super Sensitive Plenachrome, developed 1 hr. in Agfa 17; Mortensen Basic Light; 11"x14" print on Defender Velour Black I-22; Abrasion and Powder-Tone.

Fourth Award

Amateur Class

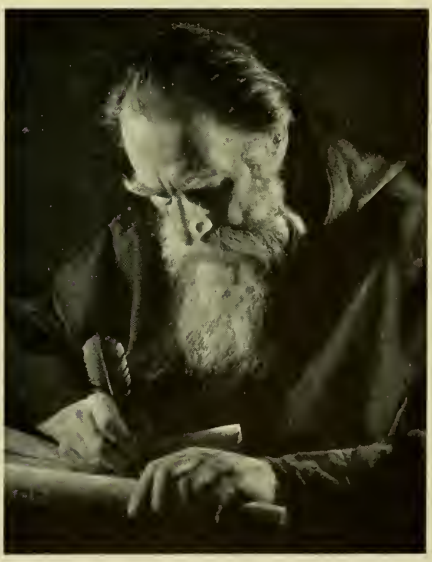
"Winterset"
Clarence W. Freeman,
New York, N. Y.

■ Mr. Freeman has seen a very interesting decorative quality in this tree and has done a good technical job of photographing it. It seems unfortunate that a somewhat higher camera angle could not have been obtained so that the snow bank in the background would carry clear to the top of the print. As things are, some of the interesting qualities of the tree are lost against the dark background at the top. This dark area also tends to call attention to itself because of contrast with the large expanse of light tone. Trimming does not help in this case because in order to eliminate the dark area at the top we have to trim away so much of the tree that there is next to nothing left. This is one of those cases where a higher camera angle is the only real solution.

Data: Leica; 90 mm. Elmar; 1/60th sec., at F:6.3, on E. K. Panatomic; 11"x14" print on Tuma Cas, gold toned.

Fifth Award

Amateur Class



"Scribe and Scroll"
William Dennin,
Chicago, Ill.

■ This print is technically excellent; the pose is quite good; the spacing is fine; and the hands are nicely posed and well controlled as to tone value. We might suggest three possibilities for slight improvement. The near hand goes slightly out of focus, which is undesirable in a picture which is otherwise entirely sharp. The artificiality of the cross lighting is a bit too apparent, in the equally strong highlights on either side of the face and in the shadow on the forehead. One of the light sources should be reduced in brilliance, preferably the one on the right. The "V" shaped areas of light and dark caused by the light catching the folds of the costume on the breast at the right are rather disturbing and tend to lead the eye up to the highlights on the shoulder at the right edge of the print, establishing a rather weak spot in the composition at that point.

Data: 2¼"x3¼" R. B. Graflex; 3 secs. at F:16, on E. K. Super XX, in D-76; by 3 No. 2 photofloods without diffusion; 11"x14" print on Defender Velour Black EL, in D-55.

Monthly Competitions

Scoring for Club Trophy Cups

The following won prizes for their clubs in the Advanced Class: H. Cooper, for the Pasadena "Y" Camera Club; Victor Pokorny, for the Aluminum Camera Club; Ante Kornic, for the Fotoklub Ljubljana; and Jack C. Sparks, for the Rothschild Camera Clinic.

The following won prizes for their clubs in the Amateur Class: L. B. Ziegler, for the San Marino Camera Club; Richard Rundle, for the California Camera Club; Clarence W. Freeman, for the Miniature Camera Club of New York; and William Dennin, for the Green Briar Camera

The following prize winners have no club affiliations: H. W. Wagner and Walter C. Ross. Club.

Contributing Clubs

Aluminum Camera Club (New Kensington, Pa.)
Amherst Camera Club (Mass.)
Bakersfield Camera Club (Calif.)
Beachcombers Camera Club (Long Beach, Calif.)
Boulder Lens Club (Colo.)
Bridgeport Camera Club (Conn.)
California Camera Club (San Francisco)
Camera Club of San Pedro (Calif.)
Charlotte Camera Club (N.C.)
Clarinda Camera Club (Iowa)
Columbus Photographic Society (Ohio)
Dallas Pictorialists (Texas)
Detroit Camera Club Mich.)
E.P.I.C. Pool of San Francisco
Fort Dearborn Camera Club (Chicago)
Fotoklub Ljubljana (Jugoslavia)
Fresno Camera Club (Calif.)
Green Briar Camera Club (Chicago)
Greenville Photographic Society (Ohio)
Marin Camera Club (Calif.)
Miniature Camera Club of New York
Norfolk Photographic Society (Va.)
Pacific Pictorialists (San Francisco)
The Pack Rats (Pasadena, Calif.)
Paramount Camera Club (Los Angeles)
Pasadena "Y" Camera Club (Calif.)
Photographic Society of Philadelphia
Photographic Society of San Francisco
Reading Camera Club (Pa.)
Redwood Empire Camera Club (Santa Rosa, Calif.)
Rothschild Camera Clinic (Los Angeles)
St. Louis Camera Club (Mo.)
Salt Lake Camera Club (Utah)
San Marino Camera Club (Calif.)
Sierra Madre Camera Club (Calif.)
Sierra Camera Club (Sacramento, Calif.)
Signa Phi Nothing (Sacramento, Calif.)
Southern California Telephone Camera Club (Los Angeles)
South Plains Camera Club (Lubbock, Tex.)
Specialists Camera Club (Hollywood, Calif.)
Telephone Camera Club of Manhattan
Tulare Camera Club (Calif.)
Uniontown Camera Club (Pa.)
Ventura County Camera Club (Calif.)
Wilshire Camera Club (Los Angeles)
Y.M.C.A. Camera Club (Victoria, B.C.)

STANDING OF CLUBS

Large Clubs Advanced Class

California Camera Club	5
Manhattan Camera Club	3
Fotoklub Ljubljana	2

Small Clubs Advanced Class

Pasadena "Y" Camera Club	27
The Pack Rats	9
Signa Phi Nothing	7
E.P.I.C. Pool of San Francisco	5
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2

Large Clubs Amateur Class

Miniature Camera Club of New York	14
California Camera Club	8
Detroit Camera Club	8
Photographic Society of San Francisco	6
Amherst Camera Club	5
Oakland Camera Club	4
Green Briar Camera Club	1

Small Clubs Amateur Class

Dallas Pictorialists	5
San Marino Camera Club	5
Camera Club of San Pedro	3

(continued from page 248)

makes it possible for the photographer to leave much to the imagination—to avoid a too revealing rendition which would destroy the effect he is after. Notice how cleverly the wet glass has been used to show just as much of the face as is desirable and no more; and if that dripping hand dimly seen in the lower central panel, doesn't make your spine tingle, you had better see an osteopath. This was a very difficult picture to get right, and Mr. Cooper has handled it with commendable restraint and understanding.

Data: 11"x14" glossy print.

What Is Your Photographic I. Q.?

Take five minutes "time out" to determine your photographic knowledge with the True-False test.

Check the square which, to the best of your knowledge, determines whether the following statements are either true or false. Then turn to page 263 to ascertain your score. The perfect score is 100%; for each error deduct 10%. Excellent rates 90%; very good, 80%; good, 70%; fair to bad, below 70%.

1. Glacial acetic acid solidifies at approximately 60° Fahrenheit.
   - ☐ True
   - ☐ False
2. "Low key" pictures are made by over printing.
   - ☐ True
   - ☐ False
3. The graininess of a developed negative is primarily determined by the manufacturing formula of the emulsion and not by the developer used.
   - ☐ True
   - ☐ False
4. Portrait lenses are sometimes deliberately designed with spherical or chromatic aberration.
   - ☐ True
   - ☐ False
5. If clouds are photographed with a color-blind film or an orthochromatic film and no filter is used in either case, the results will be the same.
   - ☐ True
   - ☐ False
6. Scratches on the negative are more apparent in prints made with a condenser than with a diffusion enlarger.
   - ☐ True
   - ☐ False
7. The alkali (carbonate) should always be dissolved with the developing agent before the preservative (sulfite) is added.
   - ☐ True
   - ☐ False
8. In a photomacrograph the actual size of the objects pictured are larger than those shown in photomicrographs.
   - ☐ True
   - ☐ False
9. William Hogarth is known as an early-day photographic pictorialist.
   - ☐ True
   - ☐ False
10. When speaking of additive and subtractive processes, reference is made to various methods of intensification and reduction.
    - ☐ True
    - ☐ False

READERS PLEASE NOTICE

Camera Craft will pay $1.00 for each question submitted by a reader which is printed in this column. Questions can not be acknowledged or returned.

Club Notes

Forthcoming Exhibitions

Fifth Anthracite Photographic Salon. Sponsored by the Scranton Camera Club. Address Fae C. Allen, Secretary, Scranton, Pa. Closing date April 27, 1940. Entry fee $1.00, limit four prints. May 11 to June 10, 1940.

Third Rocky Mountain National Salon of Photography. Address Russell F. Heckman, Secretary, 1429 Marion Street, Denver, Colorado. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 1 to 14, 1940.

Third May Salon of the Springfield Camera Club. Address T. C. McMillen, Secretary, Springfield Camera Club, Y.M.C.A., Springfield, Ohio. Closing date May 1, 1940. Entry fee $1.00, limit four prints. May 6 to 21, 1940.

Third National Memphis Salon of Photography. Address Avery N. Stratton, Brooks Memorial Art Gallery, Memphis, Tenn. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 2 to 30, 1940.

First Annual International Vancouver Salon of Pictorial Photography. Address Vancouver Photographic Society. Care of Vancouver Art Gallery, Vancouver, Canada. Closing date May 1, 1940. Entry fee $1.00, limit four prints. June 3 to 23, 1940.

First Annual Tacoma Photographic Salon. Address Tacoma Camera Club, 1021 Pacific Ave., Tacoma, Washington. Closing date May 4, 1940. Entry fee $1.00, limit four prints. Opening May 13, 1940 for one week.

18th All-American Photographic Salon. Address James M. Rhodes, Director, c/o The

Los Angeles Camera Club. 2504 West 7th St., Los Angeles, Calif. Closing date May 5, 1940. Entry fee $1.00, limit four prints. Opening date June 2, 1940.

Second Annual Photographic Exhibit of the Rockefeller Center Camera Club. Address Secretary, Mrs. Marie Ross, 140-11 Ash Ave., Flushing, N. Y. Closing date May 8, 1940. Entry fee $1.00, limit five prints. May 14-22, 1940.

Ninth Detroit International Salon of Photography. Address Detroit Institute of Arts, Detroit, Michigan. Closing date May 15, 1940. Entry fee $1.00, limit four prints. June 4 to 30, 1940.

First Annual All-Y.M.C.A. Salon. Address The Salon Committee, First Annual All-Y.M.C.A. Salon, 766 Main Street, Worcester, Mass. Closing date June 8, 1940. Entry fee $1.00, limit four prints. June 15 to 30, 1940.

Third Annual Lititz Springs Salon. Address C. B. Workman, Secretary, Lititz Springs Camera Club, Lititz, Pa. Closing date June 18, 1940. Entry fee $1.00, limit four prints. July 4 to 20, 1940.

Second Annual Atlanta National Amateur Salon. Address Mrs. George Bird, 685 Morningside Drive, N. E. Atlanta, Ga. Closing date September 9, 1940. Entry fee $1.00, limit four prints. October 1 to 20, 1940.

Petroleum Industry Photographic Salon, sponsored by the Photographic Society of America. Address F. Quellmalz, Jr., Salon Director, Petroleum Industry Photographic Salon, c/o American Petroleum Institute, Room 2040, 50 West 50th Street, New York, N. Y. Closing date October 15, 1940. Entry fee $1.00, limit four prints. November 9 to 15, 1940.

The Chicago School of Design, Directed by L. Moholy-Nagy, will spend the summer on the Mills College Campus, Oakland, Calif., June 23rd to August 3rd. Moholy-Nagy will bring with him from Chicago four members of his staff: Mrs. Marli Ehrmann, Gyorgy Kepes, Charles Niedringhaus and Robert Jay Wolff. Together they will give a course in "Bauhaus Practice and Its Present-Day Development," consisting of a basic workshop, workshops in drawing, modeling, color, photography and weaving. Moholy-Nagy, formerly a master at the Bauhaus in Germany, will also offer a seminar in contemporary art problems, designed especially for architects and craftsmen wishing advanced work with him. Further information about the Mills College summer session may be obtained from Dr. Rosalind Cassidy, Director, The Summer Session, Mills College, Oakland, Calif.

California photographers are invited to submit prints to the exhibition of Pictorial Photography to be displayed in the California Bldg., at the Golden Gate International Exposition. The committee in charge of the exhibition includes: Jack Garnett, chairman; P. Douglas Anderson, Fred Archer, Edward P. McMurtry, William Mortensen, Edward Weston and G. A. Young. P. Douglas Anderson, Fred Archer, John Paul Edwards, Edward P. McMurtry and Eugene Neuhaus will act as the jury of selection. In the original announcement Edward Weston was listed as a member of the jury but this was in error, the correct listing being given above. There is no entry fee and the closing date is May 15th. Entries are limited to four prints and an entry blank must be attached to the back of each print. Mr. Fred Herrington will act as chairman of the Hanging Committee. Rejects will be returned immediately after the judging. Send entries to Jack Garnett, chairman, Photography Exhibit Committee, Room 252 Sutter Hotel, San Francisco, Calif. Entry blanks may be obtained from Mrs. Jane Amundsen, Director of Art Exhibition, California Bldg., Treasure Island.

The San Francisco Chronicle has again been chosen as the local representative in this year's Eastman Newspaper National Snapshot Award Contest. Ten thousand dollars in prizes plus additional awards by the Chronicle will be distributed. The contest begins in June and runs to September. The Chronicle is also offering $5.00 for the best picture of the week, contestants may enter two prints each week.

The Shutterbugs Club, of Knoxville, Tenn., recently completed their first year of photographic endeavor. Meetings are held twice monthly on Friday nights at the Knoxville Y.M.C.A. Correspondence should be addressed to Helen Graham, Corresponding Secretary, 2022 Yale Ave., Knoxville, Tenn.

The Weston Camera Club, of Newark, N. J., has just been organized among the employees of the Weston Electrical Instrument Corp. Plans for the ensuing year are now being formulated by committees appointed at the first meeting. Correspondence should be addressed to A. L. Morrison, secretary, 614 Frelinghuysen Ave., Newark, N. J.

A series of industrial photographic salons designed to encourage the use of pictorial photography in interpreting and presenting to the public the beauty and significance, the spirit and the form of our modern life, have been planned by the Photographic Society of America. The first of these salons will be the Petroleum Industry Photographic Salon which will be exhibited from Nov. 9 to 15, 1940, in the Stevens Hotel, Chicago, Ill. There will be no contest of any kind connected with these salons which will be strictly pictorial. Closing date for entries will be Oct. 15, 1940. For further details write, F. Quellmalz, Jr., P. S. A., Salon Director, Room 2040, 50 W. 50th St., New York City.

During June, The Franklin Institute, Benjamin Franklin Parkway at 20th, Philadelphia, Pa., will exhibit the 1938-39 Third Annual 100-Print Travel Salon of the Metropolitan Camera Club Council, Inc.

Mr. F. J. Mortimer, Hon. F. R. P. S., F. R. S. A., and a Member and Commissioner of the Oval Table Society of New York, has been elected President of the Royal Photographic Society of Great Britain. This is a very suitable honor for one who has served photography so well as editor of "The Amateur Photographer" and "Photograms of the Year."

A photographic contest is being conducted by Braniff Airways, Braniff Bldg., Oklahoma City, Okla., with the purpose of selecting prints for use as photomurals that will decorate the interiors of their new fleet of Super-B-Liners, to be delivered in June of

this year. The contest is open to all photographers, amateur or professional. Photographs should depict views or activities indigenous to the territory served by Braniff Airways. Photographs indicative of industry, fishing, wild life, agriculture, water sports and outdoor life of the Mid-west, Southwest and Latin America are desired. For each photograph selected for use as a photomural, Braniff Airways will pay $25.00, for others selected for different purposes they will pay $2.00. The contest closes May 10. Write the above address for a complete set of rules.

"The Camera Angle," new club bulletin of the Channel City Camera Club, Santa Barbara, Calif., has just been received and we wish to congratulate the club and the paper's editor, Florence McAllister, on their interesting and informative publication. A feature of "The Camera Angle" is the thumbnail biography of one of the members in each issue which is presented to get the members better acquainted.

The Chicago Camera Club, 137 No. Wabash Ave., Chicago, Ill., will exhibit, during May, the "American Photography" prize winners and a show from the Camera Club of New York.

An invitational salon for the New York World's Fair is now being assembled by the Photographic Society of America. A distinguished jury consisting of: Joseph M. Bing, J. Ghislain Lootens, Ira Martin, Dr. D. J. Ruzicka and William H. Zerbe have selected a list of the country's outstanding photographers who will be invited to submit two prints each. These prints will be exhibited at the Fair during the months of June and July.

The results of the February Judging of the Continental Monthly Print Contest of the Photographic Society of America have been announced. Class A — Salon: 1st, E. Christiana, Utica Camera Club, Utica, N. Y.; 2nd, Otto Rothschild, Rothschild Camera Clinic, Los Angeles, Calif.; 3rd, Frederica Sisk, Maple Bluff Camera Club, Madison, Wis. Class B — Enlargement: 1st, R. H. Peterson, Photocrats, Canton, Ohio; 2nd, Bob Browswood, Photo Club of North Adams, Mass.; 3rd, Auburn Graves, Rothschild Camera Clinic, Los Angeles, Calif.

The Gary Works Photography School, of Gary, Ind., will shortly offer a Beginner's Course. It will be conducted by Mr. Paul Clements and the fee will be $2.00 for six classes to be held once a week. For further details write "Foto News," The Gary Works Camera Club, Carnegie-Illinois Steel Corp., Gary, Ind.

"The View Finder" blossoms forth this month with a 50th Anniversary issue commemorating the half-century of activity of the California Camera Club, of San Francisco, Calif. With sixteen pages, instead of the usual six, "The View Finder" fittingly celebrates this occasion which finds the California Camera Club with a vigorously active membership.

The Chicago Photographic Guild was selected as the new name of the Commercial and Illustrative Photographers Institute at a recent meeting. The new name was chosen as more suitable in view of activities planned for the future.

The Fort Dearborn Camera Club, 75 East Wacker Drive, Chicago, Ill., announce that enrollment for the spring term of the club's School of Photography was so large that two sessions have had to be planned. Some time ago this club divided its competition into two classes to insure a fairer competitive basis and they are pleased to state that the plan has met with complete success. Class A, for those who have never had a print accepted by a Salon and Class B, for those who have.

"The Anastigmat," bulletin of the Telephone Camera Club, of Washington, D. C., states that this club is broadening scope of assigned subjects in its competitions in the belief that limited subject matter succeeds only in limiting the number of prints submitted to the competition. They intend to use the four general classifications of the Eastman Kodak Co., in rotation and, perhaps, with minor changes. The Eastman classifications are: Class A, Children and Babies; Class B, Sports, Hobbies, Recreation, Avocations, Vocations, Action, Animals and Pets; Class C, Scenes and Still Life Studies; and Class D, Informal Portraits of Adults. We hope that Editor Claudy will report as soon as possible on the effect of this change on the number of prints submitted.

The Daguerre Camera Club, of Hartford, Conn., was organized in January 1938 and the membership is made up of men interested in both movies and still photography. The group is constitutionally limited to fifty members. Meetings are held the second and fourth Mondays of each month. Communications should be addressed to Quincy P. Beach, Secretary, 42 Willard St., Hartford, Conn.

Loeber's, 70 Post St., San Francisco will exhibit prints from the Taft Camera Club, Taft, Calif., from April 15th to 27th, inclusive.

The Los Angeles Camera Club. Los Angeles, Calif., will hear a lecture on "Plastic and Oral Surgery," illustrated with motion pictures in black and white and in color by Arthur E. Smith, M.D., D.D.S., on April 25th. Visitors are welcome at the Los Angeles Camera Club and further details about the lecture may be obtained by writing Mr. S. A. Pratt, Studio 5, 2504 West 7th St., Los Angeles, Calif.

The Camera Club of Richmond, Inc. (Virginia), recently completed a slide film with sound, "Making a Salon Print." The film, which runs for thirty minutes, has an electrical transcription of the dialogue and sound effects produced by radio station WRTD of Richmond. The script, photography, art titles and actors were all supplied by the membership of the Richmond Camera Club.

Attendance at the Pictorial Photographers' of America 7th International Salon, which was exhibited at the American Museum of Natural History, smashed all previous records. In the first week over 6,000 attended and on Sunday, March 10th, between 1:00 and 5:00 p.m., 2,377 people viewed the exhibition.

Alameda, California, can now boast a real, live camera club. Fifty enthusiastic camera fans recently organized the Alameda Photographic Society. Meetings are held the

second Thursday of each month at the Alameda Free Library and interested photographers are invited to attend. Current activities include field trips on the last Sunday of each month and monthly print competitions.

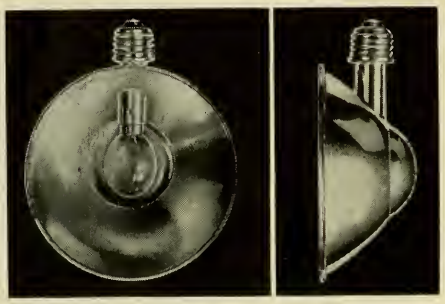
From the "Range Finder," bulletin of the Maple Bluff Camera Club, of Madison, Wis., we learn of the Wisconsin Photographic Club Council that is now in the process of formation. Purpose of the new organization will be to plan programs, demonstrations, etc., that are not within the reach of a single club, arrange for an annual state salon, handle the routing of exhibitions, etc. Further details can be obtained from the Maple Bluff Camera Club, 1005 Power and Light Bldg., Madison, Wis.

The Orange Camera Club, East Orange, N. J., are planning an album containing the portrait of every club member. The idea comes from the club's new president E. U. Anderson and it seems a project that other groups would do well to copy.

A Camera Conclave is planned for an early Sunday in June by the Santa Cruz Camera Club, of Santa Cruz, Calif., who will play host to the camera clubs of San Jose, Gilroy, Hollister, Salinas and other surrounding towns. An all-day barbecue and picture-taking jamboree will be the order of business.

The Worcester Photo Clan, Worcester, Mass., will exhibit their Annual Salon at the Worcester Art Museum, the last two weeks in April.

Notes and Comments



Mighty Midget Reflector

Stuart's Mighty Midget Reflector introduced by the Stuart Studios, 729 S. Wabash Ave., Chicago, Ill., is designed to increase the efficiency of the G. E. Mighty Midget Photoflash lamp. The reflector has been calibrated by illuminating engineers so that the angle of reflection is correct to the smallest fraction of an inch and tests have shown that the reflector gives the Mighty Midget almost equal illumination with larger lamps. Five inches wide it may be carried in the pocket and is adaptable to any flash gun or synchronizer. Price $1.95.

The new Victor Speed-O-Matic Flash Synchronizer, manufactured by James H. Smith & Sons Corporation, 544 Colfax St., Griffith, Ind., is adaptable to any camera that takes a cable release and tripod screw. The Speed-O-Matic is entirely mechanical in operation and will synchronize between-the-lens shutters at all speeds up to 1/500th second. Price is only $8.75. See it at your dealer's or write for descriptive literature to the above address.

The new model B Phaostron Electric Exposure Meter, announced by the Phaostron Co., of Alhambra, Calif., offers a simplified version of the popular model A. Only those shutter speeds and diaphragm openings found on the majority of present day cameras are given which makes for easier, quicker operation. Model B has the same wide range and speed rating from 1 to 640. Price is $5.00, case $1.50. See your dealer or write the above address for further details.

Amateurs played the major part in the company's earnings in 1939 the Eastman Kodak Co., of Rochester, N. Y., announced recently. The amateurs took 33-1/3 per cent of the company's sales as against 21 per cent for commercial and professional lines, the nearest competitor.

Defender Photo Supply Company, Inc., of Rochester, New York is now packing all photographic papers in a brand new, easy-opening envelope. These envelopes, new to the industry, are made with a double perforation across the flap of the envelope. A mere rip and tear gives quick access to the contents. No more struggling with a knife or searching around in a darkroom for a trimmer to open the package. The perforated opener is simple, sure and very fast. It is available in all sizes up to and including 11x14.

The new Bee Bee "Dual Control" Auto-Timer, recently introduced by Burleigh Brooks, Inc., 126 W. 42nd St., New York City, offers the operator what is virtually a highly efficient and versatile assistant when making projection prints. The Auto-Timer automatically turns off the safelight while switching on the printing light when focusing or printing, reverses this procedure when it is time to place paper on easel or when exposure is completed. Gives split-second accuracy in setting exposure, starts exposure with a slight touch of the micro-switch toggle and stops it automatically at time set, and repeats exposure exactly at a touch of the switch as the mechanism resets itself. The new Bee Bee Auto-Timer is priced at $16.75.

A new 32-page illustrated catalog has just been issued by Burleigh Brooks, Inc., New York. This catalog contains illustrations and descriptions of all cameras, enlargers, accessories, etc., sold by Burleigh Brooks;

including complete information on many recent American-made additions to the Bee Bee line. Photographers can obtain a copy of this catalog by writing Burleigh Brooks, Inc., 126 West 42nd Street, New York, N.Y.

If you are an apartment dweller, or if space is at a premium in your darkroom, try the Tabloid or Soloid photographic chemicals which come in compact, convenient, tablet form. Burroughs, Wellcome & Co. (U.S.A.), Inc., 9 E. 41st St., New York City, or your local dealer, can supply you with a complete list and prices. Also ask to see the Wellcome Exposure Calculator, Handbook & Diary 1940, a handy pocket-sized book packed with information, pages for exposure record and a handy exposure calculator. Price 75c.

Maurer Process, introduced by the Maurer Photo Co., of Galveston, Texas, offers a simple method of changing the backgrounds of prints from black to white without altering the negative. The process, developed by J. M. Maurer, also permits the working in of an etching effect and other alterations. No retouching skill or expensive equipment is said to be required and the effects are obtained quickly and easily. Details of the process may be obtained from the above address for $1.00.

The Vaporate Process offers the ideal protection for your films, either still or movie. It gives permanent protection against climate, wear, scratches, oil, dirt, water and fingermarks. Ask your dealer about the Vaporate Process.

The new Duo Spot Flash Adapter, introduced by Hunter & Co., 1375 Euclid Ave., Cleveland, Ohio, is a new type of "directed flash" reflector, designed for use with the new GE No. 5 Mighty Midget lamp. The unique design of this reflector permits the light to be concentrated in either 30 degrees or 50 degrees spread. The adapter has a diffuser ring which when removed gives a concentrated beam with remarkable carrying power. For close-ups the reflector is used with the diffuser ring and for long shots it is removed. Spot Flash is ideal for spot effects in multiple flash work. It will fit most synchronized flash outfits. Price is $6.95. See your dealer or write Dept. C, at the above address for descriptive circulars.

The New Model E Argoflex, a 2¼x2¼" twin-lens reflex, has just been announced by the International Research Corp., of Ann Arbor, Mich. Using EK 120 or 620 and Agfa B20 or PB20, it takes 12 pictures to the roll. 75mm., F:4.5 Argus Varex lenses and shutter speeds of 1/10th to 1/200th. Price is $35.00, case $5.00.

The Seleetroslide Junior, introduced recently by Spindler & Sauppe, Inc., 86 Third St., San Francisco, Calif., has met with such success that the company has found it necessary to double its floor space to try and meet the demand. Mr. John Sirigo, of San Diego, now affiliated with Spindler & Sauppe, Inc., is now traveling in the East arranging for increased distribution of this popular automatic slide projector. The Junior model was designed to fill the need for an inexpensive, compact advertising and display unit. It fills both these demands completely, packing neatly into a case about the size of a portable typewriter case and being priced at only $135.00 without lens.

Kodak Advanced Enlarger

The New Kodak Advance Enlarger, introduced by the Eastman Kodak Co., of Rochester, N.Y., accommodates negatives up to 3¼x4¼". Its special features include: interchangeability of lenses, outstanding evenness of illumination, rugged construction, simple, direct adjustments and a modest price, $27.50, with 4", F:11 lens.

Eastman will add new features to the Eastman Kodak Building at the New York World's Fair for 1940. A complete new front and enlarged foyer to the famous Hall of Color will be added. A new and more elaborate fashion show, two new model living rooms in which full color movies will be projected and new attractive sets in the photographic gardens will be other features.

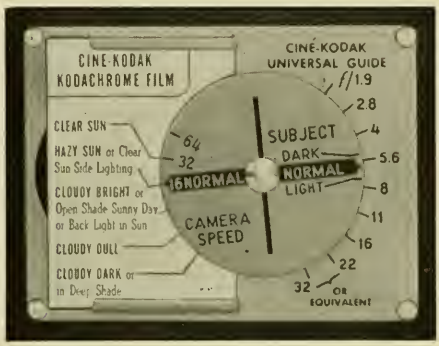
Kodachrome duplicates and reductions, in 24x36mm. size are now available at new low prices, the Eastman Kodak Co. announces from Rochester, N.Y. First duplicate from each original 25c, each succeeding duplicate 20c. Minimum charge per order (K135 & K828) $1.00. Minimum charge per order (Kodachrome Professional) $1.50.

Use cut film with the Rolleicord and Rolleiflex cameras with an inexpensive device developed by Zick, 2146-47th Ave., San Francisco, Calif. These cardboard cut film holders fit neatly into place in the focal plane without any alteration or adjustments in the cameras. They are quickly and easily loaded in the darkroom or in a changing bag. Price is 50c for three, with instructions postpaid.

The Commander, a new electric exposure meter, has been introduced by the Kemp Camera Supply Co., of Hollywood, Calif. Unusual features of the Commander are the "Miracle Eye" that enables you to measure the light on the entire scene or from any single part from camera position and the optical viewer through which you see the object you are reading. It has a wide range of light valuation, Weston ratings, and a single dial. Price is $20.00.

"Agfa Photographic Papers, Their Properties, Processing & Applications," is a new booklet just published by Agfa Ansco, of Binghamton, N.Y. Its 48 pages contain information on the types of paper and paper surfaces, selection of contrast grade, developing conditions, toning, etc. Fifteen cents at your dealers or the above address.

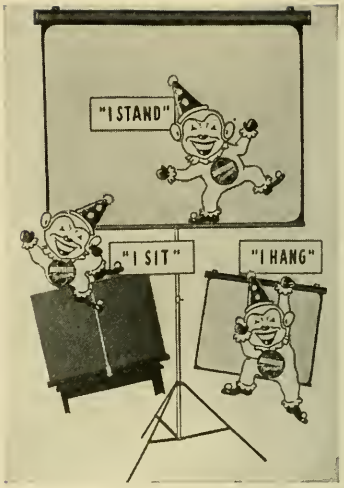
All professional photographers and studio employees are invited to exhibit at the 53rd Annual Convention of the Photographers' Association, whether or not they are members of the Association. The convention will be held in Chicago, at the Stevens Hotel, Aug. 19 to 23rd, inclusive. Closing date for entries is Aug. 10th. Prints must be entered in one of two classes: Portrait or Commercial and a minimum of 3, maximum of 10 prints must be submitted. There are no entry fees or entry blanks. Write the Executive Manager, P. A. of A., 520 Caxton Bldg., Cleveland, Ohio, for complete details.



Cine-Kodak Universal Exposure Guide

A new Cine-Kodak Universal Exposure Guide supplying individual data for each type of Eastman film will be a part of each new Cine-Kodak 8mm. or 16mm. camera, the Eastman Kodak Co., announces from Rochester, N. Y. The new guide is a chromium plate, with movable dial and groves for insert cards. The cards will contain data for each type of film and the operator inserts the one corresponding to the film in the camera. Exposures can be read directly from the guide. The new guide can be attached to any present Cine-Kodak for $1.00 plus shipping costs.

It is with the deepest regret that we learn of the death on March 25 of Mr. Albert Hansen, of the Bear Film Co. Mr. Hansen's passing will be felt keenly by his many friends in the Bay Area and elsewhere. Photography also lost a true friend in Albert Hansen for he constantly worked in its interest and his business methods were respected by all. It is typical that he should have considered the employees of his large organization, having made arrangements to have them carry on the work of the Bear Film Co. He named five directors, from whom Mr. Lorin E. Vail was named president, with Mr. George Thompson, Mrs. Nita Zwiefel, Mr. Oscar Uhle and Mr. Harold Shirley acting as board of directors.

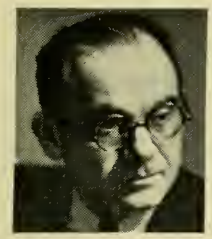


Britelite "Triple Duty" Screen

New Britelite "Triple Duty" Screen is now offered to movie fans by the Motion Picture Screen & Accessory Co., 351 W. 52nd St., New York City. It offers the maximum in screen versatility as it can be used in a standing, sitting or hanging position and any of these changes can be made quickly and easily. The screen itself is of the crystal beaded type, permitting the viewing of glare-free, distortion-free, halation-free pictures. Prices: 30x40", $10.00; 40x40", $12.00; 36x48", $13.50.

New products have been introduced by the P & H Corporation, 7000 Romaine St., Hollywood, Calif. The Kemikal Retuch Kit offers a simple, scientific method for local retouching of prints or negatives. The kit includes Emulsion Softener, Etch, Fixing Solution and Stain Remover, Blackosine (local intensifier for negatives), and Periblack (intensifier for matte paper prints). Price is $3.75 complete. The new Filmgard is a combined cleaner, polisher and film preservative that protects film from finger marks and scratches. Price is 50c for 2-ounce bottle. Instantoner will tone prints a beautiful sepia, from golden to dark brown hues and it requires no trays, redeveloping, bleaching or fixing. It is applied to the print, over the whole surface or locally as desired and then the print is washed and dried. Price is 35c a bottle. Write the above address for descriptive literature on these new products.

Scrollette is a new type of picture holder, introduced by the Revere Copper & Brass, Inc., of Rome, N.Y. Made of phosphor bronze, Scrollette is a coiled spring attached to a supporting bracket. The picture, with or without glass as desired, is slipped quickly into the spring which holds it firmly. It will stand on any surface or may be hung on the wall. Junior size, holds pictures from 6 to 9 inches, is $1.00; Senior size, holds pictures from 10 to 14 inches, is $1.50.



Morris Germain, A.R.P.S.

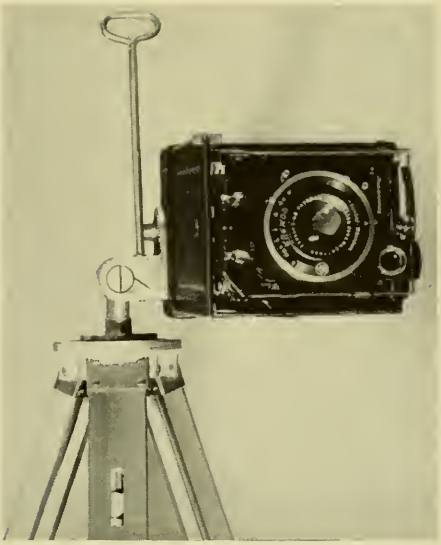
Morris Germain, A.R.P.S., has been appointed Technical Advisor at Penn Camera Exchange, Inc., 126 W. 32nd St., New York City. Mr. Germain's 18 years experience in photography as a teacher, writer and pictorialist make him an ideal selection for this post. Photographers are invited to bring their questions and problems to Mr. Germain and his knowledge and experience has been placed at their disposal without charge. Out-of-towners may also avail themselves of this Penn Service by writing Mr. Germain at the above address. Enclose a self-addressed stamped envelope for reply.

To help eliminate the guesswork from photographic processing, Temp-Atrol and Company, 8943 South Leavitt Ave., Chicago, Ill., have introduced a device consisting of a rubber nozzle, a thick glass tube containing a thermometer, and a rubber hose 24" long. The nozzle is adaptable to standard mixer faucets having a diameter of between ½" and ¾". The figures on the thermometer scale are magnified to facilitate reading. Temp-Atrol enables the darkroom worker to keep track of the temperature of the running water he uses, and sells for $1.50.

Practo Photo Accessories Corp., 109 S. 5th St., Brooklyn, N.Y., has recently purchased equipment for the grinding and polishing of filters. This makes Practo one of the few organizations which make glass, dye glass, grind glass, and polish glass without recourse to outside assistance. The Practo filters are so perfectly made and there is such fine color control exercised that the Lewison Glass Works have awarded to Practo the contract to cut and polish all their glass for use in medical diagnosis and blood counts.

New Sensigraph Capsule, introduced by the Superior Bulk Film Co., 188 W. Randolph St., Chicago, Ill., is a new hyper-sensitizing agent that will increase film speeds from 50 to 100 per cent. It is easy to use as it cannot be spilled or come in direct contact with the film. The powder is enclosed in a capsule which is placed in the film container and left for the required time. The action has been scientifically tested and the Sensigraph Capsule is sold on a money-back guarantee. Write Dept. CC-5, the above address, for further details.

A new Equipment & Accessory catalog No. 340 has just been published by Willoughbys, 110 West 32nd St., New York City. It contains 115 pages of items of interest to every amateur. Write for your free copy to the above address.



Wesco All-In-Won Tripod

The new Westco All-In-Won Tripod Head introduced by the Western Movie Supply Co., 254 Sutter St., San Francisco, Calif., offers a greatly simplified type of head for either still or movie work. Instead of separate adjustments, the Westco All-In-Won may be locked for either vertical or horizontal framing by a slight turn of the tilt arm. This method of locking permits an instant change from horizontal to vertical and allows the use of a high tripod with a reflex camera without the difficulty of straining to look into the ground glass.

The Rabinovitch School and Workshop of Photography, 40 West 56th St., New York City, is well known for the high quality of students it turns out, many of them becoming famous professionals and amateurs. The Rabinovitch School has established this reputation because it is an intimate, personal school with a distinctly different method of instruction. The enrollment is restricted so that every pupil receives the personal attention of Rabinovitch. A catalog giving complete details on the courses is available from the above address. An exhibition of fine photographs is always on view at the school and visitors are welcome.

A complete new catalog No. 49 of Wold Air Brushes and equipment has just been published by the Wold Air Brush Mfg. Co., 2173 No. California Ave., Chicago, Ill., manufacturers of these products since 1891 when they produced the first air brush. The catalog's 36 large pages describe and illustrate each article in detail and also offers much valuable information on the theory and technique as well as the application of the air brush.

William A. Alcock, of New York City longtime friend of photography, recently visited our offices. Mr. Alcock has been wintering in Long Beach, Calif., is renewing friendships of long standing among photographers in the Bay Region.

Our Book Shelves

An American Exodus, by Dorothea Lange and Paul S. Taylor. Published by Reynal & Hitchcock, Inc., New York. 158 pages 7½"x10". Cloth bound. $2.75.

The camera steadily gains recognition as a research tool in the social sciences. When used objectively its power to convince, to nail a fact down, is easily far greater than any other form of communication. This objective use of the camera as a research tool is perhaps one of the distinguishing marks of Dorothea Lange's work. She takes great care to nail the picture down to time and place. Anyone familiar with the artistic qualities of much of Miss Lange's work will quickly see that in many of these pictures she has deliberately abandoned her artist's way of seeing in order to maintain a strictly scientific approach. This emphasis on fact rather than feeling, we feel sure, is a major tenet in Miss Lange's conception of documentary photography. And we feel that the pictures in this book go far to prove the soundness of such an attitude. For the whole purpose here is to show a fact—to convince, and the pictures here do that in very thorough fashion. We do not mean to imply that these photographs are not also interesting as pictures. Many of them are startlingly so—but the emphasis is in the direction indicated.

Not so long ago we heard a debate between Cary McWilliams and Phillip Bancroft concerning the credibility of Mr. Steinbeck's "Grapes of Wrath." Much of Mr. Bancroft's argument consisted of a flat denial of Mr. Steinbeck's reliability as a witness. Such an attitude would seem utterly ridiculous in the face of these photographs.

Every student and practitioner of documentary photography should certainly study this book, for here is an object lesson in how it should be done.

The text is written by Paul S. Taylor, Professor of Economics at the University of California. The merits of the text and of the book as a whole, as a piece of scientific research have been acclaimed by eminent authorities in the field. Such appraisal is outside of the scope of a photographic magazine.

Make Your Pictures Sing! How to Perfect Your Photographic Technique, by Paul Louis Hexter, A.R.P.S. Published by the Camera Craft Publishing Co., of San Francisco, Calif. 192 pages, 6x8¾ inches, 85 illustrations, cloth bound. $3.00.

Have you ever puzzled over an amateur magician's trick, only to be amazed to find the solution so very simple? And then, turning magician yourself, have you found yourself unable to remember this same simple solution? Yes, it's easy when you know the answers and can remember them.

Paul Hexter's book gives you the answers to technical problems, and more important, presents them in such a way that you are bound to remember them.

The purpose of this book is to show the reader how to bring his photographic technique to such a point of perfection and understanding that its practice becomes automatic. To reach this goal, Paul Hexter presents a complete system of photography from the exposure through the finished print.

As the author states in his preface, "This is not just another book on photography." The idea and presentation are decidedly new and different. It is the author's belief that if the photographer understands his materials and equipment and will follow a definite system, he can predetermine his results, commanding in his finished print whatever he desires. In other words, when the photographer looks at the subject matter of the pictures he intends to take, he decides on the rendering he desires and through his standardized system arrives at the desired result.

With this idea in mind, Mr. Hexter discusses equipment, lenses and perspective, the factors of negative making, negative development, the selection of negative stock, exposure, light and lighting, equipment for enlarging, printing paper characteristics, printing, developing the print, and finishing, mounting and framing the print. We would not have you believe that this book presents a simplification of photography or a short cut to success but we are sure that if you read and perform the experiments in this volume, obtaining fine negatives and prints will no longer be difficult.

Mr. Hexter is a firm believer in the truism that there is no teacher like experience and so he presents at the end of each chapter a series of experiments that will firmly entrench the knowledge in your mind and make it an integral part of you. These experiments are worked out with care and each teaches a definite lesson. Their value cannot be overemphasized, for though it is easy to forget the written word, a visual lesson executed personally remains with you.

This is not a book for a light evening's reading, for though the writing is outstanding for its clearness and simplicity and there are no graphs, logariths or H & D curves, it is so packed with solid knowledge that it should be read through once for foundation and then digested chapter by chapter, with the experiments making the facts permanently yours.

Included in the book, is an ideal negative for enlarging. This is used not only for visual comparison but also in the experiments, in checking printing technique, etc.

Time-Gamma tables are supplied for an extensive list of films in combination with the developer recommended by the manufacturer

Mr. Hexter is to be congratulated for his ability to see the photographic process as a unit and for his ability to present his ideas with such instructive clarity. We are sure he will be rewarded by the thanks of thousands of photographers who have been seeking a clear path in a morass of contradictions.

What You Want to Know About Developers, Fine Grain and Otherwise, by Edmund W. Lowe, Ph.D. Published by the Camera Craft Publishing Co., of San Francisco, Calif. 175 pages, 5x7¾ inches, 38 illustrations, cloth bound. $2.50.

Photographers, as a group, carry with them a great cargo of doubt, confusion and misconception, which serves only to hamper and harry them on their journey to that illusive thing, a fine picture. Certainly there are some happy souls who, right or wrong, have found a path that suits them and they walk it steadfastly, taking no shortcuts or bypaths. These are, however, the exception rather than the rule.

It is also true that a great part of this burden of the majority can be traced very easily to that big bugaboo, that multi-faced demon, the photographic developer. This book does not pretend to slay this many-headed hydra but it can and does open him up so that you can look inside and find out that he is not as mysterious, evasive and dangerous as you might have believed.

The purpose of this book is to present all the known facts about developers in simple non-technical language so that the reader will understand and apply them practically to his everyday photographic work.

First, Dr. Lowe clips off the largest and most horrible heads of our hydra, those widely used but narrowly understood terms and symbols: density, contrast, gamma, reduction potential, pH, etc. He explains these, not from a chemist's or mathematician's viewpoint, but from the practical standpoint of the way in which they affect your understanding and use of developers.

Next, he explains what goes into a developer and the effect of each of the many possible constituents and their various combinations. It is interesting to note the space Dr. Lowe has devoted to that supposedly simplest of all constituents—water. This innocent-seeming member, which many of us gaily draw from our taps is a snake-in-the-grass that undoes the work of the finest chemicals and the most meticulous weighing.

Turning to the formulas themselves, the author presents them classified into groups, critically analyzing each one and giving many practical little hints and warnings regarding their use. The formulas for films are classified as follows: Non-Fine Grain Developers, Semi-Fine Grain and Super-Fine Grain. Rinsing baths and fixing formulas are also given with a critical analysis of their purpose and use. Photomicrographs, showing the grain structure, are given for the fine-grain formulas.

Next, a scientific method of testing formulas for one'self is given for the scientifically-minded and a recommended list of formulas for various purposes is presented. These recommendations are necessarily broad, for, as Dr. Lowe states, there is no one ideal formula for every case and type of photography.

Physical development is critically discussed as are various special developing methods such as: the P & H Process, the Knapp Process, factorial development, divided development, combined development and fixation, etc.

Then, paper developers are considered, again from a practical analytical standpoint.

In all, sixty-six formulas are given with both metric and avoirdupois measures.

The facts given in this book were derived from the author's personal experiments with many formulas and their variations. Dr. Lowe is an experienced chemist who has had a large share in bringing photographic development to its present state of perfection. In this book he gives the amateur photographer, in non-technical language, the benefit of the experience, experiments and knowledge gained through many years of study and practice.

Answers to "What Is Your Photographic I. Q.?"

1. True. Glacial acetic acid will solidify at about 60° Fahrenheit and will melt with difficulty. Its principal use in photography is in acid hardening fixing baths and short stop baths.
2. False. True low key pictures are those in which the tones of the subject are predominantly dark; if a full scale subject is simply printed darker than normal the print will usually appear false and muddy.
3. True. The graininess of a negative is primarily influenced by the manufacturing formula which determines the original grain size. While the grain size may be controlled considerably in development, it is secondary to the manufacturing formula.
4. True. Portrait lenses are often designed with spherical or chromatic aberration to yield large circles of confusion for soft-focus effects.
5. False. White clouds photographed against a blue sky with color blind film will result in little or no separation because the sensitivity of the emulsion is confined to ultra-violet and blue light; if orthochromatic film is used, even without a filter, some contrast will be rendered. Since orthochromatic film is sensitive to green as well as blue it is obvious that a smaller portion of the total sensitivity is confined to the blue. Therefore white clouds will be rendered somewhat lighter than blue sky.
6. True. Scratches are more apparent. The explanation of this lies in the fact that the scattering of light by the negative reduces the intensity of the directed beam in proportion to the density of the negative silver image; this effect is not compensated for by light coming from other directions, as is true in the case of diffused illumination.
7. False. The alkali should never be dissolved with the developing agent before the preservative is added. The preservative takes up the oxygen dissolved in the water and thus prevents it from combining with the developing agent.
8. True. By definition a photomacrograph is a photograph of an object visible to the eye without the aid of a microscope. A photomicrograph is a photograph of an object invisible to the eye without the aid of a microscope.
9. False. William Hogarth (1697-1764) was a famous English painter and engraver.
10. False. Reference is made to color photography. The color processes are sharply divided into two classes, namely additive processes and subtractive processes.

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◆Super Ikonta B. Latest model; perfect unscratched new condition. Original package; used carefully only few months, by this one owner. Call or write Hogue, 542 Mason St., Apt. 54, San Francisco, Calif.

◆STEREO Goerz-Anchutz 9x18 cm. (3½"x7") with two Dagor Goerz I 6.3. Leather case. Very good condition. Cost $90.00, price $37.50. A. N. Sudakoff, 5830 Princeton Ave., Seattle, Wash.

◆Zeiss Stereo Camera, 6x13 cm., F:4.5 Tessars, stereo Compur; double extension. For plates, cut film, filmpack, and No. 120 rolls. Ideal for Kodachrome. Superior, complete equipment. Details with quotation, bargain. Frank I. Jones, Henry Bldg., Portland, Ore.

USE CUT FILM IN ROLLEIS

Cut film holders (pat. applied for) for Rolleicord and Rolleiflex users are now available (6x6 cm.). Just what you have been waiting for. No change in camera necessary. Send 50 cents for 3 holders and instructions, postpaid. ZICK, 2145 47th Avenue, San Francisco, California

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◆Tele-Graflex 4x5 Tessar 4.5. Reflex 3¼x4¼ Cooke 4.5. 18 cm. 3.5 Xenar in barrel. 12 inch 3.5 Cassar in barrel. 12 inch 4.5 Tessar in Compound. 6025 Wanda Ave., St. Louis, Mo.

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"The Painter" *Julian Smith, F.R.P.S.*

Speedflashing Kodachrome

Al and DeVera Bernsohn

THEY were shooting an expensive scene. An assistant nudged the director. "Don't look now, but here comes another one of those newspaper photographers after some color pictures."

The director turned scarlet. "If he thinks he can come busting in here and take up the time of a lot of busy men for fifteen minutes and cost our company—"

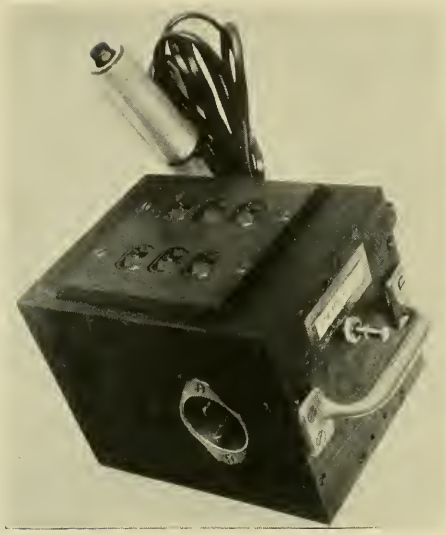
"And the vice-president's with him," the assistant continued

The director said, "Oh."

When the beaming vice-president arrived on the set with the photographer in tow, the director was grudgingly courteous. The photographer set up his equipment, made the exposure and was off the set in less than 20 seconds! A surprised and delighted director, accustomed to having his work interrupted for extended periods of time by news photographers, then became a close friend of Frank Marshall Moore, F.R.P.S., staff photographer of the *Chicago Tribune* and a pioneer in color news photography.

Moore spent two weeks dashing from lot to lot in Hollywood, grabbing Kodachromes of the cinema celebrities, making friends with photographers and demonstrating that fast-action photographs can be made in color with only a little more difficulty than in black-and-white speed work.

His most conclusive demonstration came when he approached the lot where Robert Taylor was being rushed through a series of last-minute retakes. They were working 18 hours a day dashing from hastily resurrected set to set. Moore realized that any interruption he might make would be thought most inconsiderate. He quietly told the electrician which of the many lights then turned on he could use, signalled the director that he was



The combination battery and line-current box used for making multiple flash pictures as described in the text.

ready, posed the actor in a chair and set off one flash bulb. He was off the set eight seconds after the lights were turned off!

Using Kodachrome, Moore has caught candid society pictures, night shots of divers in mid-air, horse races, child studies, ballet steps, athletic events, military action and other difficult subjects that just don't wait for slow-moving photographers.

It's done by a technique he has devised for himself—and which he modifies to suit the exigencies of each photograph.

Fast, portable equipment is essential to this type of work. Every item must be absolutely necessary and as efficient and easily set up as possible.

To set off flash bulbs Moore uses two radio "B" batteries hooked parallel, each battery of 22½ volts. They are used in combination to gain greater amperage. The pair used together last much longer than the combined life of the two used individually, and several bulbs on each of successive shots are a heavy drain. These batteries are carried in a neat black box fitted with a handle. A throw switch permits instant transfer of power from batteries to a household or other electrical current. On a panel in the side of the box are ten small female plugs wired to the batteries.

Moore always carries several wires 6 to 12 feet long and also plenty of extensions. He seldom knows in advance just what size area must next be illuminated and he is therefore prepared for anything within reason. Each wire is equipped with a male plug at one end and is usually carried with a lamp and reflector already at the other.

His lamps are all so made that they may be either screwed onto a tripod or clamped on a light stand or other convenient holder. Their sockets are of push-pull type made by Mendelsohn which permits instant insertion of the photoflood or flash bulb. When time permits, a preliminary study of the lighting is made with photofloods.

For the actual exposure, Moore always uses flash bulbs because the color of photoflood changes rapidly, and when you're shooting Kodachrome

Bette Davis and Director Anatole Litvak were really interested in Frank Marshall Moore's unique camera case which he used while making color pictures on Hollywood sets. Moore is at left.

on the fly you don't have time to correct for color variations. He carries his lights in a well-padded leather bag apart from the other equipment.

His reflectors are 5½ inch aplanatic ones, choosen because they are flat, taking very little room in his kit, and they reflect almost as much light as larger reflectors. He frequently dispenses with reflectors in making Leica exposures, this to facilitate speed in setting up equipment by eliminating the neccssity for making adjustments for "hot spots." The 35-mm roll film is considerably faster than the cut film used in the Miniature Speed Graphic (Moore's other pet camera for Kodachrome exposures) and therefore does not require quite so much light.

One of his most fascinating "bits" of equipment is a tall, slender, rectangular case with riveted metal seams and an all-over aluminum finish. This case contains cameras, a close-up focusing device, various lenses, range finders, filters, extra films and other accessories. The case is lined with sponge rubber. Each bit of equipment has its own pocket in the sponge lining into which it fits perfectly. A tripod is fitted into one corner of the case. Moore estimates the case and its contents at something over $2,000.

It equips him for every possible emergency, he feels. Once a baby humming bird was pointed out to him on a nest. The close-up focusing de-

vice permitted him to secure a rare picture of the baby bird, about the size of a bumble bee, on Kodachrome!

Once the technique is learned, indoor work is even more sure than outdoor Kodachrome photography since the former has many more color and light-volume constants than the latter. However color difficulties arise in both indoor and outdoor exposures due either to reflections from surfaces near the subject or the color of the light itself. Therefore Moore uses the Harrison & Harrison set of nine filters, ranging from very light red to very light blue. These make it possible to compensate for variations in the color of the light. Since outdoor Kodachrome is balanced for average noonday sunlight, one of these filters is often helpful for outdoor exposures at other times of the day. He has used a very light yellow, No. 2 filter for the past several years to correct for north lighting. Indoor corrections are made in accordance with the kind of lighting used, and the color of the background, floor or ceiling.

In speedflashing Kodachrome, lighting equipment is set up in advance of the action anticipated when possible. For example, lights and camera may be all ready at the finish line of a race, the camera set for a 500th or 1,000th of a second exposure. Or the equipment may be arranged to catch the fleeting expression of a difficult portrait subject.

Moore says that the simplest satisfactory lighting he uses is a single bulb and no reflector in a Leica. This, of course, permits little modeling. However it is satisfacory where speed in setting up is the major consideration and action can hardly be anticipated. Whatever the lighting, it is predominately flat, but not so completely flat as to kill all shadows and details. Cut film registers softer images and gives greater tonal range than does 35-mm. Kodachrome, but it sacrifices some speed to gain this. Therefore more light is necessary with cut film exposures.

When the action is in a limited area, and particularly for portraits, Moore uses his pet lighting set-up. It includes three No. 2 Superflash bulbs, one serving as a primary light and two as secondaries. The primary light is about three feet above and six feet diagonally in front and to the side of the subject. One secondary light is above and about eight feet to the right or left of the subject to give simple but very effective modeling. The other is about nine feet directly in front of the subject and near the floor. Its only purpose is to kill the heavy shadows from the preceding two lights, and yet retain enough for modeling. When possible and advisable one or two more bulbs are placed behind the subject to light the background.

For this lighting arrangement, only one stop smaller opening is used than for a single light, since the first secondary light illuminates areas that overlay the primary only negligibly, and the same applies to the more distant third light.

When using such a lighting arrangement, and when time permits, the photographer should carefully consider the angle of the reflectors, since this is sufficiently important to throw an otherwise well-planned lighting scheme out of balance and cause serious underexposure in important areas. Moore always assumes the position of the subject and looks at each reflector to make sure that it is aimed directly at him. All reflectors have some sort of "hot spot," and, if properly directed, these may be used spotlight fashion

"Water Ballet" *Frank Marshall Moore, F.R.P.S.*

Data: Leica camera; Summar lens; Type A Kodachrome with Wratten No. 2 filter; Synchronized flash with one No. 2 Superflash bulb; 1/500 sec. at f3.2. (Indoor pool).

Black and White Reproduction from Original Kodachrome.

to give additional brilliance to the subject. Such spots should be used and not be concealed with tape. They are advantageous when the arrangements for lighting may be leisurely made. Because of the individual peculiarities of each type and condition of reflector, Moore advises always using the same ones, to add another constant to the photographer's list.

A maximum of constants and a minimum of variables make rapid color photography much simpler. By using the same number, type and make of bulbs at a few established distances, volume and color of light are made as nearly uniform as possible and any allowances necessary are limited to usually uncontrollable sources. Use of the same type of film permits a uniform film speed and prevents time being lost in referring to a new set of ratios.

One of Moore's lighting principles is to use little modeling except as the color itself gives it to him. As an example he points out the cheeks in portrait work. For black-and-white portraiture, the hollow of a cheek is interesting and the redness is almost completely lost. However, when this cheek is recorded in color, the redness is brought out, giving the desired contour and modeling from a comparatively flat lighting. Were the lighting so arranged as to give the hollow prominence, the face would look unpleasantly gaunt. Transparent shadows may be used to advantage, Mr. Moore advises, but they must be used most judiciously.

Light volume is as important as light placement. Judgment *must* be used no matter how many constants the photographer has arranged for. Light volume applies particularly to skin coloring. A pale face should be

"Arlite Smith" *Frank Marshall Moore, F.R.P.S.*

Data: Leica Camera; Summar lens; Type A Kodachrome with Wratten No. 2 filter; Synchronized flash with two No. 2 Superflash bulbs; 1/1000 sec. at f4.5.

Black and White Reproduction from Original Kodachrome.

photographed with the opening stopped down enough to keep the face from going chalk white, and a heavy tan should be photographed with the aperture comparatively wide to prevent the face looking unnaturally dark.

The ability to select the correct filter and the correct aperture for correct exposure have become almost instinctive with Moore through years of Kodachrome work. Whenever an exposure has characteristics he might need for future work, he makes mental notes of the circumstances and technical data about it so that his judgment will be backed up by certain knowledge.

"The only source of information about photography on which the photographer can depend implicitly is his past work," he says.

As in every other type of photography, the first step in making the action color exposure is to decide what is wanted. This permits some planning, even for the most hastily grabbed pictures.

Moore was assigned to get a Kodachrome of Arlite Smith, world's champion diver, in an indoor pool. The best position he could find from which to photograph her dive was an angle position, three-quarters to the front, 10 feet away from where her head would pass the camera. If the exposure were made from the front with a single bulb, he reasoned, the light would fall on her head and shoulders and would fade off by the time it

A dice game at the Dev-Lin, one of Chicago's biggest gambling joints. (Data in text.) This is one of the shots which earned Moore his start as a news photographer.

reached her legs. The legs would then appear quite dark. To allow for this, he set up a second light five feet closer and directed it to approximately where her legs would be. The result was an evenly lighted, well-balanced Kodachrome.

Outdoor speedflashing at night affords limited results, but sometimes permits action absolutely unobtainable otherwise. Moore went to an All-Star football game armed with a Kodachrome-loaded Leica wired to take one flash bulb on the camera and one on an extension on a wire held in his hand. The camera was set at 1,000th of a second. The photographer sat studying fast-action line plunges, trick aerial plays, fumbles and kicks. Soon he knew which end would receive the pass after certain plays where the end runs would be under certain conditions. The camera was set for the approximate distance by guess focus and by almost participating in the game, Frank Marshall Moore secured many brilliant news photographs. His timing had to be perfect!

The photographer warns against expecting too much from action shots taken at night, however. The subject may be lighted well enough, but the background almost invariably is a dead blackness that is not attractive. He plans every background as well as every subject in his transparencies. His dislike of an empty background is second only to his objection to fuzzy,

"Sweet Adeline" *Frank Marshall Moore, F.R.P.S.*

Black and White Reproduction from Original Kodachrome.

confusing, out-of-focus backgrounds. He advises a lens of short length whenever possible.

Ingenuity and perception are essential to fast Kodachrome work. Moore was first transferred from a rewrite desk to the photographic department of the *Tribune* when he showed his ability to think and work rapidly in the pinches. The paper was looking for authentic illustrations for an article it was running on gambling in Chicago. Several photographers had failed to get satisfactory pictures of one of the largest gaming houses in the city. As a joke, the city editor asked Moore, whom he knew to be a rabid amateur photographer, to try his luck at it.

No one knows just how he did it, but the photographer succeeded in smuggling his camera through a thorough search by suspicious guards into a room of 1,500 people, and in getting the desired pictures under the noses of the guards, spaced all around the room on a four-foot ramp, who were watching for just such goings on.

One picture even shows nine people around a dice table apparently looking directly into the camera. Out of 18 negatives exposed under these conditions he secured 18 recognizable different prints!

Moore was made a staff photographer immediately!

His ability to handle natural portraits soon evidenced itself, so he now does subtly story telling pictures for his paper, handles society pictures, which are run in four color newsprints in the Sunday sections, and conducts an annual one-man show.

"Anti-aircraft Gun in Action at Night."

Frank Marshall Moore, F.R.P.S.

Data: Leica camera; Summar lens; Type A Kodachrome.

(Other data given in article.)

Black and White Reproduction from Original Kadochrome.

His pictures have been exhibited and have won honors throughout the world, and recently he won the Leica Barnack medal. He considers photography both his profession and his hobby. Many of his black-and-white prints are considered models of striking composition and expert observation of original pictorial matter. He is in frequent demand among the camera clubs as a speaker and he has conducted many popular tours of amateur photographers throughout the Chicago area.

One very good general characteristic of his prints is a diagonal composition carrying the eye from the lower left to the upper right portion of the picture. The left to right direction, he maintains is a natural result of our reading in that direction. Those who have been trained in familiarity with the Hebraic and certain Oriental languages tend to read and see pictures from right to left. The bottom-to-top direction is from our natural tendency to seek out a sound base for everything we see, whether it be a building or a picture.

Most prized of his Kodachromes is one which was taken at a society ball which he attended on a routine assignment. After the conventional portraits of the glamorous young ladies were made, he was seated at a table with one of the parties. Suddenly, about 15 feet away, a group of prominent socialites broke into barber shop harmony as picturesquely as only those who have been to a society ball for several hours can do. There was no time to do anything but guess. Frank Moore set the camera at guess focus, slightly on the near side to give him a better chance of getting the prized shot, opened up to F. 4.5 and swung the speed dial to 1/1,000th of a second. Then he rose, held the camera in one hand well above his head, and scored a bull's eye. He calls the transparency "Sweet Adeline."

But the most difficult assignment Moore ever received was the photographing of one of the U. S. Army's new anti-aircraft guns in action at night. The gun was set up with a full crew manning it. A short distance away a spotlight was stabbing into the sky.

The crew had received only three shells for the picture. Moore asked them to fire the first so that he could plan the layout, get the angle of the flash and ascertain the general composition of the finished photograph and decided that three separate exposures were necessary to catch the entire picture.

Stationing the gun crew at "fire" position, he took a 10-second exposure of the beam across the sky at f. 6.3. He next set off three flash bulbs from the camera position 60 feet away to catch the crew. They took the signal of the flash bulbs to fire the gun, the flash of the gun making the third exposure.

Both finished Kodachromes (one for each remaining shell) were as striking and detailed transparencies as the most particular of editors could want, even in monochrome.

And again Moore proved that ingenuity is the primary requisite for the photographer who chooses to speedflash Kodachrome.

Diffusion-When, Why And How

John Bohne Ehrhardt

THUMBING through my scrapbook the other night, I happened upon a very interesting little clipping that had been removed from an issue of a popular magazine some years ago, was pasted up and promptly forgotten. It was a few terse paragraphs on diffusion, breezy and informative, but it left the reader with a feeling that half a dozen tomes could be written on the subject without nearly exhausting it. It was just a vigorous push calculated to start the reader a-thinking.

Now, it has always seemed to me that diffusion is a problem rarely taken seriously. The average writer on photographic themes seems to say "Some diffuse and some don't. If you want to diffuse you can do it by this method or that method or some other method." And the matter is let go at that. I have never seen a lucid analysis of the why of diffusion and, so far as the how is concerned, the technique of diffusion with the miniature camera is rarely touched.

We all know that there has been a tendency to overrate sharpness in recent years. Possibly this can be blamed in part upon the influence of Weston; more probably it can be blamed entirely upon the toying of a jaded profession with the miniature marvels. In any case the tendency has far outrun the bounds of sanity. Granted that the miniature can secure great enlargements rivalling in gross definition contact prints from studio negatives —this last has been demonstrated again and again; nevertheless we cannot afford to overlook the fact that the inexorable laws of physics peg the amount of detail obtainable with a two or three inch lens considerably below the amount expected from a lens of six times the focal length. And the net effect of extreme enlargement is to present great, bald, meaningless areas whose very sharpness proclaims their vacancy.

This brings us to the why of diffusion and I must admit we are among quicksands. For we are dealing with that inestimable and highly explosive subject called art and we must tread carefully.

Some years back when I was devouring the little informal essays of the literary masters hoping, poor fool, to find therein some blazed and certain path to success, I found myself wondering uncomfortably exactly at what was I aiming. I was actually questioning any reason or method for writing beyond "he said," and "she said" and "it was rumored" of contemporary journalism. And some place along the line one clear voice Joseph Conrad's, boomed out "To make you see." "To make you see" and I promptly forgot all the balderdash of Pater and Bacon and the brawling Ben Jonson who had labored so mightily at obscuring the truth. And the experience of later years has crystalized the words of Conrad into part of my existence. The years have brought me only the conviction that all the arts and crafts preservative and interpretative, painting, writing, sculpture, photography, from Grub Street and Greenwich Village and dirty, smelly little darkrooms on up to the heights of Parnassus have as their one common aim "To make you see."

It seems strange that so few workers in the graphic arts have realized this essential unity. Photography has been notoriously heedless here. It is easy enough, I suppose, to look upon a photograph as a true reproduction, the crystalization of a scene exactly as it appeared for a moment, the preservation of that crystalization for generations. But is it? Fundamentally we must recognize that both the writer and the photographer deal in formal figures; the writer in characters which represent phonetic movements which serve to represent ideas, the photographer in two dimensions and monochrome to represent things in three dimensions and polychrome which may in turn represent ideas. And in each case he succeeds best who shears most rapidly through the Byzantine formalism and hauls forth the idea in arresting, understandable form. It is easily followed that one sees better when he sees but but one thing, the essential, clearly and that he sees faster when he is not shown too much.

My nightly prowls in Hell's Kitchen have left me with many mingled feelings and many a glimpse of a great picture. Ten years ago one could say that such subjects were beyond the camera; today science has made them technical possibilities. But neither "candid" cameras nor hypersensitization nor synchro-flash has alleviated the artistic problems by one

iota. I have seen many things which could not be fitted into an 8 x 10 space without destroying the idea. And the failure of others has borne out my testimony. If you want just pictures for the reformer's press, you can succeed spectacularly. You can secure brilliant surface records with your flashbulbs and hypersensitized film, records of brutality that say nothing of the humanity underneath.

It should be apparent therefore, that we cannot say diffusion is entirely a matter of taste. Instead we must recognize that certain subjects must be softened if we are to achieve a satisfactory rendering; or, stating the case another way: There is little room for diffusion in press work, but if you are looking for something better than a press result, you must make place for a diffusing disk in your kit. Or—say rather—if you are looking at ideas and emotions rather than facts, you are rarely, if ever, seeing in sharp focus.

I have no quarrel with Weston; rather I can find only humble admiration and unmixed respect for the man who has done so much toward a truly American art. Weston prints in sharp focus because he sees in sharp focus, because he looks most lovingly at those things whose texture and crisp form suggest most their significance and he is great because he can make the beholder see sharply with him. But Weston himself would not apply his methods to subjects utterly foreign to them. Call up before your mind's eye the picture of a dainty lady in ruffles and lace. Snap her at f .64, if you please, and print her on shiny chloride paper. And then ask yourself; What ungodly thing is this, this incongruent assembly of points and angles and ragged threads? I can't think that Weston would be guilty of it, but I know how many Westonites who would. The danger of f .64 is that it has degenerated so readily into formalism, that it went the way of the theatre after Elizabeth when men made rules instead of plays. It is easy for a man like Weston to find a method and master it, but lesser minds are mastered by it.

Now, since you have come thus far with me, perhaps we can take our cameras and do a little experimenting. Probably the most obvious use for soft focus is portraiture. If you ask me the best way to go about it, I would say get a studio camera and a soft-focus lens (the Verito is very good) and a stock of slow chlorobromide paper, contact speed. For there is no alternative for the soft-focus lens, only inferior substitutes. And if you stop to analyse the subject, you will see why.

I admit that there is some difference of opinion here and I have seen some very pretty prints made through ordinary diffusion disks and bolting cloth. I think though, that the eyes should be sharp, as sharp as they can be, and the rest of the face should fall off by imperceptible stages into the background. This is true of many subjects outside the realm of formal portraiture. You must fasten upon one object to carry the theme and present this object clearly and crisply, so that it takes the beholder's eye directly the eye enters the picture and you must subdue all things irrelevant, background, blemishes and such, that there is no desire for the eye to wander away before you have told your story. This is simple enough with a soft-focus lens. It throws a sharp spot in the center of the ground glass, but a little toying with the focussing rack, the diaphragm and the move-

"The Cloud Trail" *Gustav Anderson, Amityville, N. Y.*

22nd Los Angeles International Salon

ments of the camera front can move your sharp spot around the plate and control the area of definition. You print by contact and get what you see on the ground glass.

Probably you use a miniature. I like the minnie for its convenience and its flexibility, but no practical application of the soft-focus lens to miniature work has yet been devised. Add to this the fact that it is difficult to judge just the right amount of diffusion for the negative and you have a sorry condition indeed. For pictures diffused in enlarging readily fall off into a fuzzy grey mush without character or appeal. And while there are many methods for securing general diffusion of varying degrees, the selective softening of lenses in the Verito class is seldom seen in miniature work.

For general utility the writer is inclined to favor diffusing disks laid out on the Duto or Kodak plan. These can be fitted to almost any enlarging lens and have a great advantage in thoughtful design. Both have concentrically ruled lines on their surfaces; the Kodak diffusing scheme also includes straight lines radiating from the innermost circle. There is a small spot directly in the center of the lens which is without markings This delivers a relatively shap spot on the paper and can be used to advantage.

There are two methods of controlling the diffusion. One is the diaphragm; that clear spot in the center of the lens means that diffusion can be lessened by shearing off the edges of the disk with a constricted diaphragm. Furthermore, by altering the position of the negative in the field of the lens, we can take off just one little sharp spot from somewhere on the negative and leave all else soft and elusive. There are two ways of altering the normal relationship,—either by moving the negative about in the carrier, if you have the room, or better, you can mount a small plate camera on the front of your enlarger and adjust the lensboard to suit. A 2¼ x 3¼ plate camera has enough lateral and vertical movement on its front to permit almost unlimited adjustment of a two or three inch lens. If your enlarger is home-made, this should be no problem; and many commercial jobs can be adapted very readily for the work. In any case, the extra camera is a good thing to have around.

It is generally agreed that miniature shots should be diffused in enlarging, that the negative itself should be as sharp as sharp can be. But it is also agreed that diffusion in the blow-up invariably yields muddy whites. There is no certain cure. The use of the diffusion disk on the enlarger as I have advocated here will give as much trouble as bolting cloth or any other diffusion medium. But—mark this well—only bright negatives should be diffused. A little greying-over here can be tolerated nicely. This is one item that has been repeatedly overlooked in standard miniature work. Diffuse a sharp, flat negative and you get a meaningless mush.

Don't forget the diaphragm. Most diffusing disks give too much softening when used with the lens wide open. Degree of diffusion wanted will largely depend upon what you wish the beholder to see, but unless one is dealing with a harshly lighted subject, a minimum of softening, so little that it requires a close inspection to detect it, is usually about right. If you use a Kodak disk on your enlarger, you will probably find that stop of f.8 or f.11 will meet your needs.

Overall diffusion, of course, can be obtained by the standard trick of

"Tenacles" *Frederic Baldinger, Lakewood, Ohio*

22nd Los Angeles International Salon

stretching bolting cloth over the lens. And we also have the Englishman's excellent stunt of wiggling a piece of thick plate glass someplace between the enlarger lens and the paper. This last dodge produces an elusive, vibrant softening without appreciable degradation of the whites. You can secure more diffusion simply by working up an irregular smear on the glass with an oily rag. There are any number of simple tricks for general softening, too numerous to be itemized here. But at least one more method is worth passing on: A studio worker of my acquaintance diffuses enlargements simply by hanging a small seive in front of the enlarger lens.

There are methods of diffusing selectively in enlargement without recourse to such erratic instruments as diffusion disks and short focus lenses. They are about as simple as dodging but have never, to my knowledge, been used outside my own darkroom. All you will need is some stiff, thin wire, some cardboard, a pair of cheap embroidery hoops and a supply of cheesecloth. Since this technique is calculated to keep both hands busy, a footswitch for the enlarger is a worth-while investment.

The first technique to be described has a practical side: I developed it to soften hasty retouching in the background of press negatives. Of course it was necessary to soften just a small portion of the picture, and that not too much, leaving the subject absolutely sharp.

Take your stiff wire and cut a piece slightly longer than the length

you have found most convenient for your dodging paddles. Bend a loop in one end;—the loop should be between one and two inches in diameter. Stretch one of two thicknesses of cheesecloth over the loop by gluing it to the rim. Take a piece of cardboard and cut an off-center aperture of about the same diameter as the loop. Glue cheesecloth over the hole and then, let's go.

Let us say that you want to soften a background or subdue the join line in a copy of a composite print. Find your exposure and begin the enlargement in the usual way, but keep your loop moving over the part to be softened. Holding it closer to the lens will increase the diffusion but it will also soften a larger area on the print. The shadow of the wire will guide you here. When the calculated exposure is complete, take up your aperture board and expose again through it, keeping the hole moving over the parts already exposed through the loop. You will have to give about half again the original exposure to make up the loss of light on areas exposed through the loop. No precise directions can be given since too many variables are involved, but a little experimenting will teach much.

The second method is chiefly applicable to portraiture and, used skillfully, can be made to approximate very closely the handiwork of a soft-focus lens. You will need your embroidery hoops and some cheesecloth. Stretch one layer of cheesecloth over the hoops for slight diffusion, two for more drastic effects. Cut a small hole in the cloth someplace just away from the center. If you are using two thicknesses of cloth, make the hole in one layer slightly smaller than the hole in the other, so that definition does not fall off too abruptly in the finished print. You have now only to expose through the hoops, with the clear hole moving over the portion it is desired to keep sharp. Here again it is necessary to allow for lightening in the diffused portion. Print the eyes or whatever is to be the sharp object to the desired depth, then continue the exposure with a dodge paddle held just above the hole in the cloth. You will probably find that different jobs call for holes of different sizes, and occasionally it will be necessary to move the hole closer or farther from the center of the hoops. But new cloth can be stretched in a few minutes and cheesecloth is so generally valuable that no darkroom should be without a supply.

Of course, none of the foregoing changes the fact that diffusion in enlargement will invariably degrade the highlights. Neither does it refute the established practice of making small negatives sharp and diffusing them in the blow-up. This is the most practical method, yes, if you want a minimum of failures and a maintained standard of quality that is not of the highest, just comfortably passable. The success of Martens and the other European miniaturists who use Duto disks on their cameras attest the value of diffusion that does not injure print quality. But it remains that the way to mastery equal to theirs lies through a few gross of films spoiled by too much or too little diffusion, acres of paper consigned to the wastebasket and gallons of futile developer down the drain.

We cannot expect under these conditions that those who make their living by the camera will waste time and valuable materials on experiment. But it is not too much to hope that some amateur workers will take up the challenge. If they do, they are choosing a steep uncertain path, but one which brings satisfaction of achievement.

The Advent Of Microfilms

Fredric P. Luther*

THIS year the patrons of more than sixty public libraries in America will, when consulting rare books and newspaper files, place a roll of film four inches in diameter in a special projector and read an enlarged image of light and shadow in lieu of the printed original. On that inch-wide roll of film are recorded eight hundred newspaper pages or sixteen hundred book pages, reduced to as little as one-twenty-fourth the size of the original. Placed in the projector, the image is enlarged back to the size of the original or even larger.

The history of microfilms is a story of the ingenuity of numerous individuals in various fields of research who dabbled in photography first by making the usual run of beach and backyard snapshots. Then, as they acquired more proficiency in the use of the camera, they turned to more serious subjects, such as landscapes of definite pictorial character. It was but a short step from there to the utilization of the camera in that particular branch of research in which the erstwhile snapshooter was working.

Although photography was being used in the reproduction of documents in archives at least as early as 1905, the procedure was very costly because of the use of fairly large photographic plates. It was not until shortly before the outbreak of the World War that the use of small plates lowered copying costs to the point where the photographic reproduction of archival material could be considered practical. And it was the introduction in early post-war days of the precision camera using cinematographic film really opened the field to intensive research.

In recent years librarians and archivists have become increasingly aware of the importance of recording material on miniature film. As early as 1934 such recording cameras were being used by a branch of Science Service in making literature in the library of the U. S. Department of agriculture available to research workers throughout the country. By 1935 a contract representing a "gentleman's agreement" on the subject of microfilming copyrighted material was signed by a representative committee of

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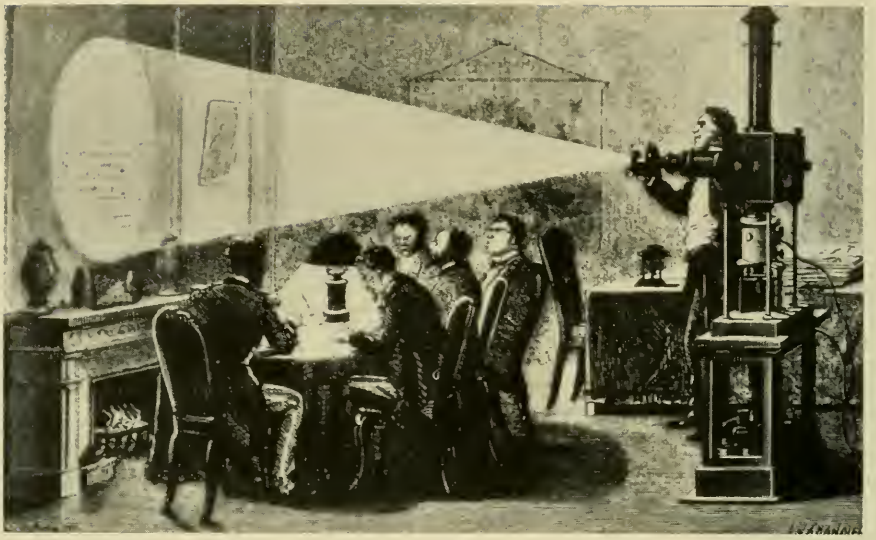


The first microfilms: military dispatches copied on tiny films were sent by carrier pigeons into the completely surrounded city of Paris during the German siege of 1871, and were consulted with the aid of a "magic lantern."

librarians and the Association of Book Publishers. In the summer of 1937 archival microphotography was formally and successfully introduced to archivists at the Paris World Congress of Documentation, and was demonstrated at the Paris Exposition at the same time. During the winter of 1937-38, the American Library Association began publication of the first "professional periodical devoted to the use of photography and related processes in the reproduction of materials in print and manuscript form." And just last spring, the New York *Times* announced regular film editions of the *Times* for library subscribers.

The rapid growth of documentary microphotography has brought with it a mushroom crop of special copying cameras and adaptations of the so-called candid cameras. At present there are between fifteen and twenty of these special cameras and half-dozen or more of the "candid" cameras (with accessories for adapting them to microfilming) on the market. Of these, about seventy per cent will give results rated "excellent" when used by experienced operators. The worth of the other thirty per cent lies chiefly in the value of their advertising to hasten the recognition of photographic documentary reproduction as a coming thing of importanee.

The copying camera differs from the ordinary camera in several respects. First, it must be able to focus down within a short distance to admit of reduction ratios as low as 8:1, and preferably as low as 1:1. This means a double extension bellows for 1:1 work, or a removable lens and extension tubes; the use of supplementary lenses to change the focal length of the lens with which the camera is equipped is not to be recommended for good results.

Next, the coyping lens should, to produce the very best results possible,

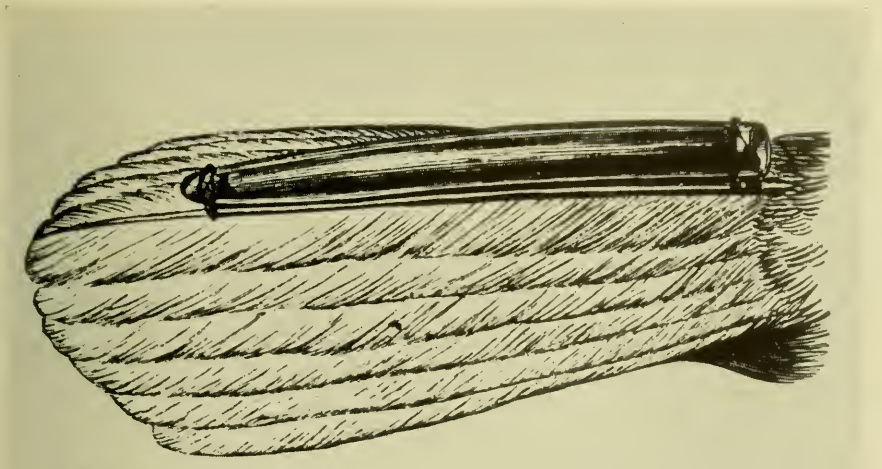


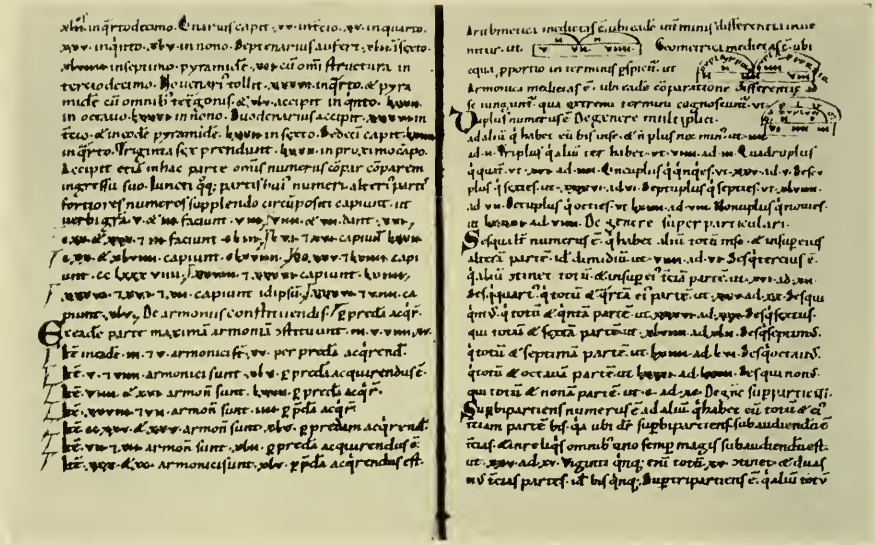
Fig. 49. — Le tuyau de plume, où est contenue la dépeche microscopique.

Comparative sizes of the tube carrying the military dispatches to Paris, and the pigeon's wing to which it was attached.

be ground so that its critical focus is absolutely flat and at about 12:1 reduction. For nearly all work, however, the lenses furnished on the better cameras of today are entirely satisfactory where the resolving power (capability of recording very finely drawn and closely contiguous lines as such, rather than as a homogenous grey mass) is not overtaxed. Although standard lenses for such cameras often have exceedingly high powers of resolution, they are calibrated for best results at infinity, rather than at two feet.

A third, and highly desirable, feature is the use of thirty-five millimeter film. For one thing, this is a size obtainable in more out of the way places than any other size. Also, more special types of film are available in 35 mm. than in other sizes; these include color, infra-red, reversible, speed, high contrast, and high resolution. Furthermore, it is available on non-burning base in lengths up to four hundred feet, providing great economies in cost and ease of handling. Although sixteen millimeter film presents many of the advantages of 35 mm., there is not the impetus for introducing special effects films as is provided by the incessant demand by professional motion picture studios for new and better 35 mm. films. There is also the necessity of greater reduction ratios (with attendant loss in definition), since 16 mm. negative areas are but one-fourth that of 35 mm. frames, or one-eighth that of double frame negatives.

The speed with which materials can be copied depends upon several factors. With the special copying cameras the film magazine usually will hold a 100 foot roll, enough for 1600 frames on 35 mm. or 4000 frames on sixteen millimeter. Adapted cameras seldom hold more than forty double frame exposures, although one which was marketed for aerial work will ac-



An enlargement from a microfilm negative—Placement II. The original is a mathematical treatise written in A. D. 1060. Fungus stains on the original have been removed in the microfilm copy and the contrast and legibility greatly improved.

comodate a 250-exposure load. The speed of operation in the adapted cameras is limited to about 175 exposures hourly. The special cameras, by virtue of longer runs without reloading, and automatic film advance and shutter release, can handle from 500 to 1000 pages hourly, while two models (which are sold only to the Federal Government) are capable of handling 1500 pages of bound volumes or 2000 loose sheets per hour.

In some respects, photographic copies are even of more value than the originals. An operator well-founded in the theory of color can, by photographing his material by means of carefully filtered light, make a more legible record of a faded manuscript, or one on which stains have appeared. He can counteract the effect of faded ink, through the utilization of infrared and ultra-violet rays, expose forgeries, erasures, and overprints. He can eliminate or enhance letters in any color. And after the film negative is made, he can make any number of film copies or enlargements on photographic paper at very little cost.

Although most of the advances in microphotography have come as a result of the interest of librarians and archivists, it has proved itself of great value in other fields. Since book publishers must make an edition of at least 1000 copies to break even on production costs, scientists who have monographs for publication which will demand the printing of less than this number are turning in constantly increasing numbers to microfilming; for a very low fee an abstract is sent to a selected group of subscribers, and the film record of the monograph is made available for purchase by interested persons. In this way, only as many copies as will be sold are made up.

Doctors have found microfilming of case histories provide great redne-

A modern microfilm reading machine. This reader, the Argus, is used as shown for consultation by an individual; it may be used also for wall projection for study by a group, or it may be used for making paper enlargements.

tions in filing space. In addition, they have been using recording cameras in numerous other ways. Among the more ingenious of these has been the installation of a recording camera over the operating table. At various stages during an operation, the surgeon notifies the nurse, she depresses a pedal, and a picture has been taken, the film automatically advancing for the next picture. In this way, lantern slides can be made for lecturing before medical classes, or illustrations for textbooks. Such slides, made on natural color film recently were introduced as legal testimony on the findings of a doctor making an autopsy. Some experimentation has been done also on the problem of microfilming bulky and highly inflammable X-rays.

Documentary microphotography has entered the realm of industry as well. Banks are copying cancelled checks and ledger pages on film. Department stores are filing film, rather than carbon, copies of monthly statements, at a saving in storage space of 31 out of every 32 filing cabinets. Title companies are copying all deed recordings, that they may have a duplicate of all files in the county clerk's office. Art and music schools are recording the classic paintings and compositions for classroom projection purposes. Historical associations are microfilming pioneer maps and diaries. Engineers are filing 1 x 1½ inch film copies of each of their three-foot charts, complete and faultless records in roll form which occupy less than five per cent of the space occupied by the original charts. Biologists are

making close-ups of insects and plants, achieving magnifications of fifty diameters and more without the aid of microscopes.

Microfilming never will completely replace printing. It is most probable that they will travel hand in hand, one supplementing the other, each realizing its limitations and each doing its own work without encroachment upon the preserves of the other. The "gentleman's agreement" between book publishers and microphotographers is a tremendously important step in the history of documentary photography, and marks the spirit in which the representatives of these two branches of textual reproduction are approaching the problem. The one will bring all popular writings to the many; the other will bring all papers of limited appeals to the few. Together, they form a powerful alliance for the good of all.

TABLE A
ESTIMATED COST OF MICROFILMING
A TYPICAL COUNTY RECORD BOOK OF 640 PAGES

	High Contract Positive Bulk Film	Positive Daylight Film	Micro File[1] Daylight Loading Only
PLACEMENT I—One page per Double Frame			
Film—100 Feet	$3.00[2]	$3.75	$.6.00
Camera Operator[3]	1.00	1.00	1.00
Processing of Film[4]	2.00	2.00	2.00
TOTAL COST PER BOOK	$6.00	$6.75	$9.00
PLACEMENT II AND III—One page per Single Frame			
Film—50 Feet	$1.50	$1.88	$3.00
Camera Operator	.75	.75	.75
Processing of Film	1.00	1.00	1.00
TOTAL COST PER BOOK	$3.25	$3.63	$4.75

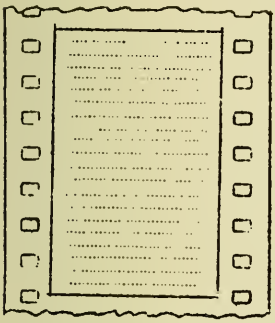
[1]MICRO-FILE FILM may be required for old and faded documents, or where a variety of colored inks or papers are encountered.

[2]BULK FILM may be wound on No. 10 Eyemo Spools for use in Photorecord Magazine in darkroom. A light-tight film-changing bag (costing $5.00) may be used to load and unload film in the magazine at the job.

[3]THE CAMERA OPERATOR'S labor cost depends on the wage rate, ability of the operator, and the condition of the records. Under favorable conditions a capable operator can microfilm a 640-page book in one hour, using Placement I. It is felt, however, that allowing 2 hours @ 50 cents per hour will be a conservative estimate to cover most contingencies.

[4]FILM PROCESSING COSTS will vary in different sections of the country. The $2.00 cost per 100 feet of film estimated represents an average price obtainable where a sufficient volume of microfilming is contemplated by the abstracter. This cost per roll of film may be reduced to about $1.00 if the camera operator develops his own film. The cost of suitable space and facilities for processing are not included in this lower figure, but we cannot over-emphasize the importance of having the processing done as close to the job as possible. The camera operator will thus be able to correct errors with minimum waste of materials.

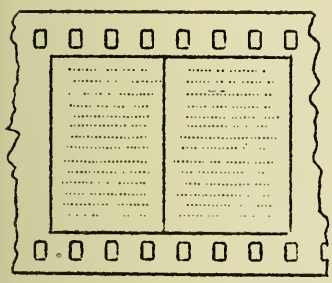
TABLE B
PLACEMENT METHODS
USED IN MICRO-FILMING



PLACEMENT I
One Page per Double Frame

PLACEMENT I— 800 Pages per 100 Feet of Film

Recommended for 12″ x 18″ pages and all other sizes where maximum legibility is necessary.



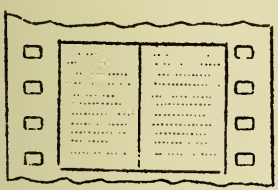
PLACEMENT II
Two Pages per Double Frame

PLACEMENT IIS
One Page per Single Frame

PLACEMENT II—1600 Pages per 100 Feet of Film

Legal Size documents, 8½″ x 14″, will appear almost original size on the Argus Reader Viewing Screen. Pages 12″ x 18″ will appear about ⅔ of original size.

Placement IIS will be used on loose sheets such as 8½″x14″ size, when microfilmed at time instrument is recorded.



PLACEMENT III
Two Pages per Single Frame

PLACEMENT III—3200 Pages per 100 Feet of Film

Used only for smaller books, such as 6″ x 9″ and for microfilming of correspondence files where maximum film economy is of major importance.

Exposure With Extra Extension

Robert S. MacCollister

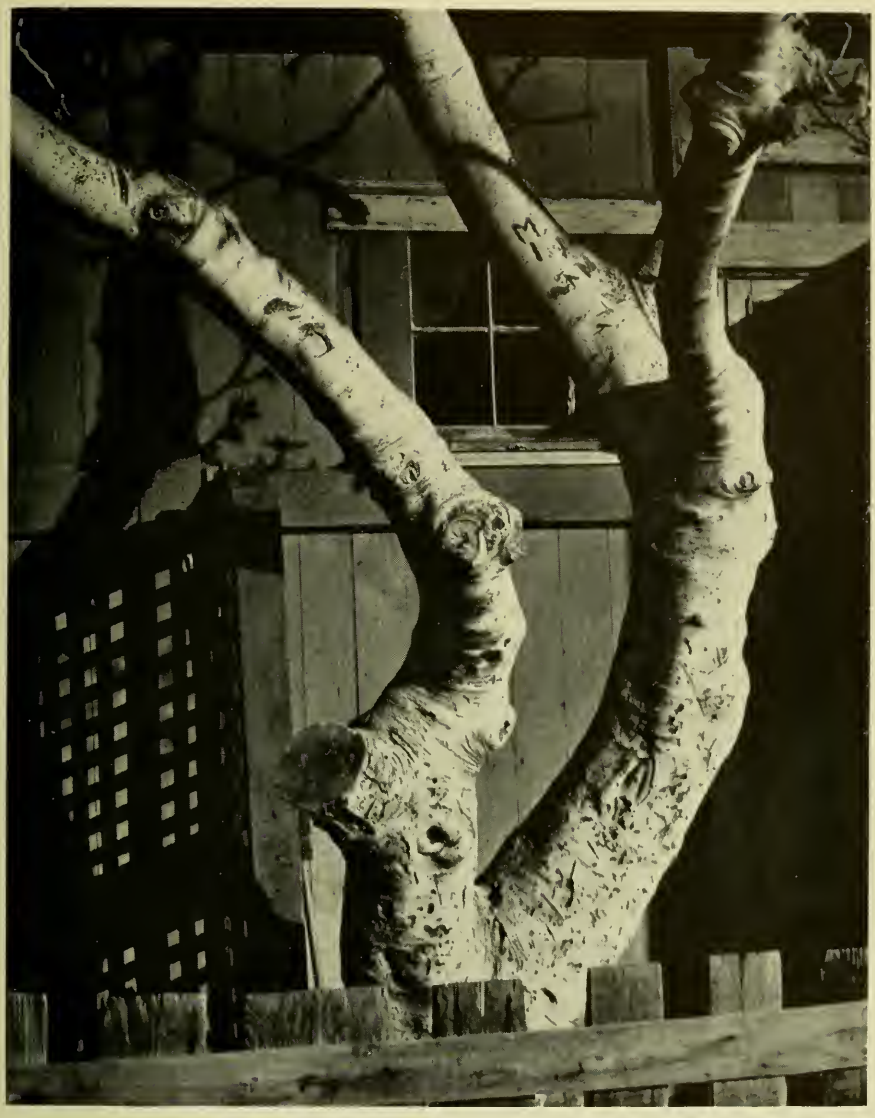
EVERYONE knows that to focus for near objects one has to rack out the lens beyond the "infinity point" on his camera. This racking is necessary because for a near object the image is farther away from the lens than for a distant one. Therefore, since all lenses used on present day cameras are marked in f/stops calculated for infinity only, these stops cease to be correct when we focus our cameras on near objects.

With modern emulsions, even Kodachrome, there is enough latitude available so that this incorrectness is not important until we focus on objects closer than ten times the focal length of our lens. Thus, working with a four inch lens, we can disregard this inaccuracy until we come within 40 inches of our subject.

However, should we wish to photograph the multitude of interesting subjects that demand our coming within this distance and particularly should we wish to use Kodachrome in this range, this inaccuracy in our f/stop markings will become a very important factor, and in many cases will mean the difference between success and failure.

The situations met with most frequently in practice are those arising from the use of extension tubes. These are generally short tubes, threaded or with bayonet mounts on each end, so arranged that they may be placed between the lens and the lens mount of the camera to extend the lens out beyond the usual range of focus. Since this brings the plane of sharp focus much closer to the camera than usual, and reduces the size of the field photographed to quite small limits, it is then possible to take pictures of the proverbial gnat's eyebrow. Coins, small beetles, postage stamps, bits of fine jewelry, small pictures or illustrations, eyes, teeth and myriads of other small subjects may be photographed in large or even full size on the film, and the small objects may be made to fill the frame or film size being used.

It will be seen that, while actual tubes will be necessary with many cameras, such as the Exactas, Contax and Leica, Primarflex and Korelle reflex, and other cameras with the interchangable lenses, including motion picture cameras, the same principles will apply to cameras of the stirrup



"The Fig Tree" — *Martha Homsey, San Pedro, Calif.*

22nd Los Angeles International Salon

front type or view camera type, such as the Recomars, Maximars, Plan Primars and the Graphic type cameras. In these cases, the extra extension of bellows available beyond the usual range of actual focusing will act in the same way and give the same effects as the use of actual extension tubes on other camera types.

In an effort to facilitate the calculation of more accurate exposure readings under these conditions, the following discussion of the theory and practices involved is offered.

Theory

The usually understood meaning of the term f/stop has been that it is the ratio between the focal length of the lens and the diameter of the beam of light entering the lens. This is quite true when the lens is focused for objects at infinity.

However, the above definition is actually a simplification of the true definition of relationship between lens aperture and exposure. A more correct expression for this relationship is based not on the lens focal length, but on the distance of the image from the lens itself. Thus the true definition of the "f/stop" is the ratio between the image distance and the diameter of the beam of light entering the lens.

This does not contradict the first mentioned definitions, since with the lens focused on infinity, the image distance and the focal length of the lens are identical, and the two expressions are therefore one and the same.

Practice

There are two methods for compensating for the inaccuracy in the f/stop markings. One can either increase the time of exposure, or one can find the true value of the f/stop, considering the distance of the object and the consequent extension on the camera itself.

It should be pointed out that the effects of this inaccuracy will always tend to underexposure whenever extension tubes or extra camera extension are used.

Considering the method of finding the true "f/stop": the following procedure is simple and accurate, and involves a minimum of mathematics. The method is stated in the manner of a rule;

1. Add the extra extension (length of the extension tube i. e, length of extra extension beyond the infinity marking on the camera focusing scale) to the focal length of the lens.
2. Divide the result by the focal length of the lens.
3. Multiply the marked f/stop on the lens barrel by the result of this division to find the true and accurate f/stop at the extension.

Before working out an example, it will be noted that the result of section two gives us a factor—similar in many respects to the factor used in the calculating of the true exposure with a filter. This factor should hold no more terrors nor be any more bewildering than that used for a filter. We may call it the extension exposure factor, and much time will be saved by its use.

Let us illustrate this method with an example. We have a kine-Exacta camera fitted with an f/2.8 Tessar of 50 mm focal length. We want to take a large picture of a coin, so we employ an extension tube 50 mm long. Given a lighting setup, that, with a Weston meter reading calls for an exposure of

f/8 at a twenty-fifth of a second, at what marked f/stop shall we set the lens to get the right exposure?

By adding the length of the extension tube (50 mm) to the focal length of the lens (50 mm) we get 100 mm. Divinding this by the focal length (50 mm) we get a factor of 2. Multiplying the series marked f/stops on the lens by this factor, we find that the values which run 2.8, 4, 5.6, 8, 11, 16, and 22 actually should be 5.6, 8, 11, 16, 22, and 44. Thus we come to the finding that f/4 is actually f/8 so we set the lens at marked f/4 and get an actual exposure for f/8 and a correctly exposed negative is the result.

It will be seen quite readily that another way to solve this problem would be to divide the f/stop indicated on the meter by the factor obtained from (2) above and use that figure for the lens setting.

Considering the time of exposure method for compensating for the inaccuracy of f/stop markings, the same rule will apply, except that instead of multiplying the f/stop by the factor obtained by (2) we multiply the time of exposure by the square of this factor to obtain the proper exposure time when using the marked f/stop at its face value.

In the same example used above, we could set the lens at marked f/8 and multiply the twenty-fifth of a second by 4, the square of 2, to get about 1/6th of a second, the proper exposure time for that marked f/stop at that extension.

Application

The first method considered above is by far the simplest to apply. It may be used with any lens, any camera and any extension.

For those cameras, either still or movie, that are able to use extension tubes, the factors for each extension tube may be worked out in advance, and then marked permanently on the tube to save working the problem each time the tube is put into use. Where one extension tube is being used frequently, revised f/stop scales may be made and fastened on the lens barrel over the marked f/stops, making it unnecessary to multiply the marked f/stops by the factor everytime the diaphram is set.

On cameras of the Recomar type, that will go out to double or triple extension, the above methods are very easy to apply. The extension may be measured directly, by measuring from the marked infinity point to the position of the focusing indicator on the lens mount. This added to the focal length marked on the lens itself, divided by that focal length will give the factor described above, which may then be applied to the f/stop or squared and applied to the time of exposure as desired.

For black and white work, where it is not necessary to be so critical, the entire extension (extra extension plus focal length) may be obtained approximately by measuring from the plane of the film to the plane of the iris diaphragm. This last method will not work with telephoto lenses.

The methods outlined in the preceding paragraphs apply not only to still cameras but to motion picture cameras as well. Since the time of exposure is fixed, the factor will have to be applied to the f/stop directly in motion picture cameras. Cinebugs who have tried Kodachrome exposures in extreme closeups and with their telephoto and long focus lenses and have had unexplainable underexposures will be able in the future to prevent them by the application of these corrective methods.

Western Amateur Camera Conclave

OPPORTUNITY to hear and see America's big-name photographers is being offered in Oakland, California, July 25, 26, and 27 at the Western Amateur Camera Conclave, according to Edward H. Towler, general chairman of the event, which will bring together camera-users of the eleven western states.

The Hotel Leamington is headquarters for the Conclave which is sponsored by the Associated Camera Clubs of Alameda County. Commitments already received by the program committee assure those who attend the Conclave the chance to learn at first hand from the finest workers in the country. These men, according to Towler, will give lectures and demonstrations and conduct seminars in vital photographic problems of the day. Special photographic salons will be presented, a field trip and floor show are included in the program and the closing day of the Conclave has been designated as Western Camera Day at the Golden Gate International Exposition on Treasure Island. Cash prizes and ribbons will be awarded for prints made at the Conclave.

Principal Speakers

Definitely scheduled for lectures and demonstrations are: Ansel Adams —"Murals"; Fred Archer—"Basic Portrait Lighting"; Horace Bristol—"Camera Journalism"; Willard D. Morgan—"Synchro-Flash Photography"; Laszlo Moholy-Nagy—"New Trends in Photography"; and Edward Weston, whose subject has not yet been named.

Seminar Sessions

Seminar sessions for those registered at the Conclave will be conducted by: P. Douglas Anderson—"Projection Control and Toning"; Sigismund Blumann— "Snap-Shooters' Problems—and Rewards"; Frank W. Day—"Paper Negatives"; Dudley Haskell—"Advanced Technical Problems of Kodachrome Exposure"; Ross A. Ross—"Taking the Kodachrome Picture"; George Allen Young—"Print Clinic—a candid discussion of submitted prints."

Exhibits

In individual galleries, the following print and color shows will be hung: Selections from the nationally-famous U. S. Camera collection; the All-Western, All Color show of Crocker-Union; and one-man shows by William Mortensen and Edward Weston

Other Activities

All persons registered at the Conclave, Towler said, will receive a distinctive badge which will enable them to get behind-the-scenes shots on Treasure Island, which will be visited on the closing day of the photographic gathering. The visit to the Fair will also present photographers with the opportunity to view the Pageant of Photography which is being assembled by Ansel Adams in the Fine Arts Palace. Six galleries have been set aside for this exhibit, which promises to be one of the finest ever gathered together for American camera enthusiasts.

At the Conclave headquarters in the Hotel Leamington, studios with

models will be provided for those who would try out their cameras on indoor subjects, there will be a field trip (transportation included) along the Oakland waterfront, to Lake Merritt and the Oakland Municipal Airport and there will be a dinner and floor show, the latter staged under special lights, installed with camera-users in mind, and there will also be exhibits of the latest photographic equipment by nationally known manufacturers.

Prizes

Prizes, according to Towler, will be awarded for pictures made in Oakland or Alameda County during the week of the Conclave. Top money will be $100; second, $50; and third, $25. There will be seven ribbons for honorable mention and special prizes for the best pictures made at the floor show; of a United Mainliner at Oakland Airport with stewardesses for models; and of the Hotel Leamington.

All for One Dollar

The registration fee for all Conclave sessions, including lectures and demonstrations, seminars, salons, use of models and studios, field trip transportation, entrance in all contests and the special World's Fair Camera day credentials is $1.00. The Conclave is being staged by the Associated Camera Clubs of Alameda County as a non-profit venture in the interests of photographers in general. More detailed information will be provided in the next issue of Camera Craft, or if you want immediate word write to the General Chairman of the Western Amateur Camera Conclave at Room 321 Financial Center Building, Oakland, California.

A Pageant of Photography

Palace of Fine Arts—Golden Gate International Exposition

PHOTOGRAPHERS in general owe Ansel Adams a debt of gratitude. Because of his persistent efforts, Photography will this year occupy its rightful place among the art exhibits at the San Francisco Fair. Last year photography had no place among the art exhibits at either fair, but this year, in San Francisco at least, it comes into its own.

Advance plans indicate that the Pageant of Photography will rank among the finest photographic exhibits ever held. The show will be displayed in six galleries. Two galleries will be devoted to Contemporary American and Contemporary California Photography. These will hold changing one-man and group shows, by outstanding photographers and it is probable that the more significant shows will be repeated as opportunity offers. A third gallery will be devoted to Contemporary Color Photography; a fourth to Technological and News Photography; a fifth to the History of Photography; and the sixth to the History of the Motion Picture. A little theatre will function in connection with the motion picture exhibit in which artistically important pictures will be shown.

Ansel Adams will act as director of the exhibit. The general committee consists of: T. J. Maloney, of "U. S. Camera," Dr. Grace McCann Morley, of the San Francisco Museum of Art, and Ansel Adams. Because of lack of time, and space limitations submission of work will be by invitation only.

Camera Craft will review this extremely important exhibit in an early issue.

Cinema Section

Edited by

William A. Palmer

So You've A New Baby in the House

OF all good excuses for taking home movies, none is better than the new baby, and since the growing process is so very rapid at the start, the family movie record should begin at once. The process of making good movies of a very young baby has some problems because one can not bring the infant into ideal photographic localities and the matter of exposure or adequate lighting that will not injure a child's eyes is also of some moment.

If one wishes the record to be very complete the picture taking might start in the hospital. Here the problem is mainly one of adequate light. One can't very well bring in photoflood lights without incurring the frown of hospital authorities. However, through the aid of a cooperative nurse, the infant can be brought near a window where one should be able to get close-ups. With Super XX black and white film one should be able to get most any type of scene in a well lighted room, even in the nursery. However, we strongly recommend, that for baby's pictures, one starts out with color and maintain that standard because baby pink looks so pretty.

When the infant is brought home, the movie making can start in earnest. In general, there are several points of camera technique in connection with making the best baby pictures which may require a few preparations. In the first place, 90 per cent of the scenes taken should be extreme close-ups, full head and shoulder pictures, so that one can get facial expressions accurately. With a tiny baby, head and shoulder close-ups require that the camera be brought within two feet of the subject. This in turn requires that the lens of the camera be able to focus at such close distances.

If the camera is not already equipped with a focussing mount, it will be necessary to do one of two things: For those cameras whose fixed focus lenses are not removable, a portrait attachment can be obtained which will give the focus for a two foot distance. If the camera is one which has a screw type mount, the camera may be focussed for closer distances by unscrewing the lens. The only method to determine the amount the lens should be unscrewed is by previous test which can be done as follows: Cut the letters from a large calendar to show one, two, three, and four foot distances. Then set these sheets with the

numbers on them, at the proper distance from the camera lens and make a series of short flash scenes, each scene with the lens being unscrewed a fraction of a turn. When a film so photographed has been returned from processing, one can determine how many fractions of a turn will give an accurate focus at one, two, three, and four foot distances from the camera. In the case of eight millimeter cameras the focussing problem is not so critical and one can almost guess at the amount of unscrewing to give a reasonably good focus at two foot distances. This distance works out to be about one quarter of a turn with the regular 12½ millimeter lens. On a 16 millimeter camera with a screw type mount, the lens usually must be unscrewed one complete turn to adjust the focus for a two to three foot distance.

Because extreme close-ups are going to be the rule with baby pictures, it will also be necessary to allow for finder parallax. Few finders have any parallax adjustments at all for extreme close-ups, and it is necessary to make allowance for it. The exact field of the camera at close distances is not so important as in the case of title work, but you should know where the exact center of the scene is. To obtain this information one can set up the camera when it is unloaded so as to be aimed at a bright electric light bulb. The spring motor of the camera is run down so that the shutter may be left open and then with a little piece of leader film in the open film gate, one can adjust the camera so that the light bulb appears in the actual center of the aperture. With the camera in this position, one may look through the finder and place a dot of India ink on that part of the finder glass which corresponds to the position of the electric light. Having done this, one can be assured that at any other time when working at that distance, that the ink mark will represent the exact center of the field.

In the matter of lighting suitable for photography we have three general conditions. In all cases, though, the quality of light should be one of extreme diffusion for two reasons. It is easier on the baby's eyes and that type of light makes a much better scene because it gives very few shadows. A fairly high *level* of illumination will not hurt baby's eyes if the light *source* is not too bright. In other words, the light source must be of low brilliance but large area.

The first of the three general conditions is obtained out of doors in open shade. In no case should outdoor pictures of babies be taken in direct sunlight.

The second satisfactory light condition is obtained by natural light indoors near large windows. Here the proper lighting effect can be obtained quite easily by having the sunlight streaming in the window and hitting white objects—bed sheets are excellent—and then reflecting into the room. The baby should never be put in the direct sun but can be placed in the shade with enough reflecting light from the sheet or another reflector to give a nice diffused illumination. If a window is equipped with Venetian blinds painted white one can obtain ideal light near the window by adjusting the blind so that no direct sunlight comes through but merely the reflected sunlight from the Venetian blinds. Such an adjustment will give a light source covering the entire window area yielding a fairly brilliant but very diffused lighting.

The third condition of lighting is obtainable from artificial illumination or photoflood bulbs. Here again precautions should be taken. Never should bare photoflood bulbs be used, because the concentrated light source of high intensity is very hard on the baby's eyes. The most satisfactory arrangement, if the room has a white ceiling, is to have two large units, (preferably No. 4 photofloods)

directed toward the ceiling. This will flood the room with a very even light of sufficient brilliance for photography, and will be entirely safe for the baby. If a white ceiling is not available, photoflood units with diffusing screens of tracing cloth or spun glass should be quite satisfactory. The diffusing screen, however, should be placed at least 12 inches away from the bulb. Still a third arrangement is to direct a number of photoflood units against a projection screen, so that reflected light therefrom falls on the baby and is used for photography.

In all cases the lighting arrangements should be kept simple, for there is no need of fancy technique. Side lights, top lights, or back lights won't add anything to the scene. All you want is a straightforward picture of the baby, who has enough glamour by himself without tricky lighting.

When filming in color by artificial light, one must remember that if type A Kodachrome film is used, all daylight must be excluded. If a combination of daylight or artificial light is desired, one should use daylight blue type photoflood lamps and regular Kodachrome. A mixture of two colors of light source will upset the color balance and cause the infant to have peculiar skin tones.

In connection with taking pictures of babies we would like to urge fond parents to try and exercise a little control over their cinematic activities and not fall into the usual habit of parents who shoot roll after roll of film at the start while the baby is very young and before the novelty wears off, then forget to bring out the camera for the next four years. We suggest, rather, that the film be purchased in as small units as possible, a 50 foot roll for example instead of a hundred. For the first month or so, plan to expose one roll each week-end while the first growth is most apparent. Thereafter, one should keep the camera loaded at all times and take a few scenes at fairly frequent intervals. If one plans to make a more or less regular cinematic session each Sunday morning before any other activities are indulged in, one should have no difficulty in making fairly complete movie records.

One final suggestion to make the baby's records complete: Have a slate or blackboard with chalk handy and make titles, however crude, indicating the date on which each series of scenes was made, because it won't be long before you will forget entirely just how old the baby was at such and such a time. Later, if you care to edit your films and put in more professional type titles, these identifications may be removed, but just in case you are like most of us, and fail to get around to complete editing jobs for years and years, you had better mark the date at the time of shooting.

Questions and Answers

Question: Is it practical to replace glass beads which have been scraped off a screen surface?

Answer: We do not know of any practical method. However, the entire screen surface can be replaced for very little, making it unnecessary to purchase an entirely new screen.

Question: Can you give a good developer formula for home reversal of film?

Answer: While reversal developer formulae are legion, one of the best and certainly the easiest to obtain is an X-ray film developer. The Eastman D-19 formula can be purchased in prepared form and mixed with water to make a very long lived and reliable solution.

When You Go Blind

DO you know that you are completely blind while your eyes are moving? To test the truth of this statement you have only to watch your own eyes in a mirror. Concentrate on one or the other of the eyes and then move them slightly to adjust your vision to another point. You will find that while your eyes obviously do move you can not see that motion. Watching someone else's eyes, you can see that, while the motion is very rapid, it is nevertheless taking place in an appreciable time. However, watching your own eyes you can never see the eyeball move because apparently, while your eye is in motion, it is completely blind. We don't presume to know the physiological reasons for this except that it seems to be a fact. The point is, that if our eyes become completely blind while moving, it is quite a bit to expect a motion picture camera to record a clear image while doing the same thing.

By this time you have gathered that what we are leading up to is another approach to that often repeated admonition to hold your camera steady while photographing. Practically every instruction book that has been written for motion picture cameras and, certainly a great proportion of articles written in this magazine and others, continue to repeat the fact that one should hold his camera very steady. The advice is often given not to panoram unnecessarily or if that seems desirable to be sure to move the camera very slowly and deliberately. Some writers have even gone so far as to say that panning should not be indulged in at all. That is saying a little too much, because there are limitations of a moving picture camera that require a certain amount of camera motion.

Comparing our camera again with our eyes we find a lack of similarity in the matter of angle of view. Our eyes are both telephoto and wide angle lenses combined, so that our general field of vision is exceptionally wide, being a matter of almost 180 degrees. For example, we can be looking straight ahead and still catch, "out of the corner of our eyes" any image or motion so as to know that there is an object there. We may not be able to see it very clearly but nevertheless we get that sense of its being there. In the center of our eye's retina is the area of critical vision which is really quite narrow. This angle of vision is small being in the neighborhood of 5 degrees, which would compare with a rather long

focal length telephoto lens on a movie camera. It is because of this very narrow angle of critical vision that our eyes are continually forced to shift their viewpoint in order to take in all the details of a certain scene. For example, we can not read an entire line of printed matter unless our eyes shift their position, or their critical area of vision, as many as four or five times. Here again you may prove this statement by watching someone else reading and notice how his eyes jump.

When we try to recreate the effect of natural vision with a movie camera, we cannot present a scene that will both take in an extremely wide general view of scenery and show critical detail simultaneously. We, therefore, must present it in a series of scenes, some being wide angle views or long shots, others being closer views or close-ups. To change the angle, we can either change lenses on the camera or we can move the camera's position to and from the subject.

There are many scenes, usually those of a general or scenic nature, in which the natural tendency is to want to panoram the camera. The thought in doing so is to recreate the effects that we get with our eyes in trying to capture the broad panorama. We fail to realize that our eyes do not take in that scene in one continous sweep. We look at it in much the same way we read printed matter, with the eye stopping here and there at various points of interest and then switching to the next. That switching is made very rapidly and as we stated at the start somehow or other the communication of vision to the brain is turned off for the moment and we in effect, go completely blind until the eye has reached another stationary position. We might venture one possible explanation for this peculiar turning off of the optical powers and that is, if we were to get a register to our brain of the sensation of a very rapid motion we would become dizzy, an effect often experienced while viewing amateur films. To get back to our problem of photographing a landscape so as to represent the effect that the eye receives. We can't handle the motion picture camera exactly as the eye functions. That is, have it take in a series of views in a series of jerks, because the camera hasn't got that superior type of combined wide angle-narrow angle lens. Therefore, the closest approach to it is a scene made by moving the camera verry very slowly from one side to the other. If the motion of the camera is slow enough, the eye is permitted to pick up various points of interest as they move by and concentrate on them for the moment before moving on to another point of interest. In general, though, such a scene is usually not as satisfactory as several well framed shots taken with a stationary camera. While it is putting it a little strongly to state that the camera never should be panoramed it is a pretty good rule to use the technique very sparingly except for occasional scenic shots where the panoram seems justified.

There is one case where camera movement, and often very fast camera movement, is necessary. This is on follow shots such as typical news reel scenes of horse races, automobile races and the like, when the camera follows the fast moving objects holding them in the center of the scene and the background goes into a hopeless blur. Here the movement of the camera may be very rapid in order to keep the object relatively stationary with respect to the camera.

To sum up the whole point, we might give these directions: Don't panoram unless you can't avoid it and then only if it is done with extreme care. The one exception is a follow shot or scene of a moving object at which time one should swivel a camera with as much speed as necessary to follow that object.

Suggestions For Salons J. H. Sammis

BECAUSE this game of photography is such an intriguing one, albeit a complicated one if one is to play it at all seriously, some of its phases have grown in a rather wild and ungarden-like manner with many contradictions and little uniformity. We refer to salon competitions.

It is of course true that steps have been taken. Limitations of four print entries to a contributor, an almost international mount size of 16 x 20 inches, the ineligibility of hand tinted photographs and a somewhat standardized entry blank constitute some of the steps. Considering the youth of the game we feel that it has done remarkably well and are in no way going to complain. There do seem, however, some easily taken steps yet to be taken. The following suggestions are simply that—suggestions.

In making up entry blanks, wouldn't it help if the paper size were so arranged that the blanks would when folded slip into a common, household variety of envelope without too many folds? We know that *gummed* shipping labels would cost more than the "tear-off-on-the-dotted-line" ones so common to most blanks, but after all, salons are not really supposed to be money makers—or are they? Many of the English salons furnished gummed labels and gumming is probably no more costly in these states of ours than in England. Some of us would appreciate having three holes punched in the left-hand border for filing the first page as a record sheet in one of the typical theme paper loose leaf note books. The holes in the second sheet should be handy for the salon committee in handling the submitted entry blanks.

If the salon committee really wants to know the "process" used (why that particular piece of information is so important we have never quite understood—not that it makes much difference, but most people would probably rather know what camera was used, or what fine-grain developer), it would help a lot if they would leave a space large enough to write the information. "Chloro-bromide gold toned" even when abbreviated to "Cl-Br-Au-toned" is a trifle cramped in a half-inch space.

Many entry blanks fail to name the person or persons to whom money orders or checks should be made out. Some of them are vague as to the address of the "Salon Committee" to whom the entry blank should be sent. We remember one salon where the checks had to be made out to one individual, the entry blank sent to another, and the prints to a third. That practice no doubt simplified handling at the receiving end (if all the contributors got all the directions straight) but it certainly didn't help on the sending end. A post office box expressly for the salon would seem a simple answer to that difficulty—or perhaps some sympathetic camera store address where all incoming mail could be kept in one big box for the various salon committee men.

If the regulations of the salons were tabulated on the entry forms instead of being written out in sentence form, the prospective contributors could more quickly ascertain just what they were.

It would save many of us and many salons some pennies if the usual remark about allowing the postmaster to open package for inspection were printed right on the labels. Some of the postal employees take their jobs seriously and require one of those one-cent red labels if the statement isn't shown somewhere on the package.

Some of the salons tell in advance who the judges are to be. We can't help but feel this to be a commendable practice. Despite claims to the contrary, most judges have fairly decided preferences and it would seem that a contributor has the right to some hint as to the type of work that would fare best with a given judge. It might even be a good thing if some of the men who do a great deal of judging be asked by various photographic publications to frankly state their views on what constitutes an acceptable salon print in their own mind.

Those salons that give the contributor some idea of how narrowly he got in or missed getting in are to be congratulated, but we know that such procedure entails a tremendous lot of work if the salon is very large. It would be nice if the entry blank gave some clue as to the type of catalogue to be issued—whether a sheet of mimeographed paper or a printed booklet with six cuts. Sure, it's very noble not to care about such trivialities, but some of us aren't so noble. Some of the salons promptly upon receipt of entry and prints send a one-cent card acknowledgment and later immediate notification of the results of the judging—this is all appreciated. What most of the salons don't do, and which would be very much appreciated, is return one's prints shortly after judging when all four have been rejected. Since the salon has no further use for the prints we fail to see why they should be kept until the close of the salon. It would seem that the committee in charge would be glad of the opportunity to get some of the no doubt tedious work of returning prints over with before the final closing of the show and not have all of the job piled up at the end.

Because of some recent recommendations from a few prominent salon contributors for fewer and smaller (more "select" we take it) salons, some of the more recent salon organizers have sought to gain distinction and prestige for their offspring by advising a very small number of acceptances, regardless of the number of submissions. This is often limited by "restricted wall space." It is, of course, the privilege of those in charge to run their show as they see fit and naturally enough, none of us are compelled to submit, but perhaps something of all this should be mentioned *before* the salon, probably on the entry blank, and not afterwards in the catalogue. Accepting the top eighty or one hundred prints only because there isn't room on the walls for more even if the next hundred in rank are good prints strikes us as being analogous to flunking all but the top hundred in a class of one thousand because there is only room for one hundred in the next grade. The question arises as to whether salons are to be regarded as competitions or exhibits of photographic work. We know that there must be limits but wonder if they must be so arbitrary as wall space.

And now may we add that this is not sour grapes? We have had a lot of pleasure out of the salon game, and feel we have come off very luckily. What has been said has been said in the hope that a good thing may be made even a little better.

"The Sun Breaks Through" *R. D. Kaufman, Pasadena, Calif.*

First Award—Advanced Class

■ Good technique is combined with good "seeing" to produce this interesting picture. Notice particularly the fine balance between dark and light masses. The eye can move from the low point of the gulley either to the left or to the right, but in either case it is led firmly up to the peak which constitutes the chief point of emphasis. Observe the importance of the dark foreground in adding depth to the picture. Cover this area up and see how the print flattens out. The line set up by the brightly illuminated left wall of the foreground gulley pulls rather strongly toward the left elge of the print. This may be helped a little by slight dodging in at the left. It would be ideal, of course, if the foreground shadow could have been linked up with the shadow area in the upper left by a dark passage—for then the dark and light areas would all pull together . . . always a desirable condition. The tone value of the sky in the upper right could well be a little darker. It would, perhaps, be better if the cloud form were absent altogether or, at least, did not carry over to the right edge of the print so that this area could be made up of the darker tone of the sky.

Data: 4 x 5" Korona View; E. K. Super XX in DK-50; 11 x 14" print on Defender T 33 Glossy.

Wm. A. Garnett,
Pasadena, Calif.

Second Award

Advanced Class

■ Perhaps the most fascinating aspect of this picture is the beautiful flame-like movement in the sky. Notice how the force of this movement diminishes toward the upper left thus eliminating any tendency for the eye to move out of the picture in that direction. This sky is particularly fine from the compositional point of view because it completes itself within the picture space. One sees so many skies which do not do that and, consequently, carry the eye out of the picture. The dark foreground gives a fine base to the picture and adds to the brilliance of the sky by way of contrast. The pathetic little tree helps in several ways, and the picture would surely be less effective and overly simplified without it. It adds something of a decorative quality to the picture and a suggestion of the struggle of living things against the elements . . . but most of all it establishes the feeling of space between foreground and sky, which essential element would not otherwise be present. Notice that the sky tone here is not completely black (a condition which is too often present in shots of this kind) but has been held up in tone value sufficiently to maintain a feeling of luminosity.

Data: 10½ x 10½" Bromide print.

"Dark Corolla"
Maurice J. Schlatter,
Pasadena, Calif.

Third Award

Advanced Class

■ We will call the subject matter of this picture "a blossom" and its individual elements "petals," with apologies for our horticultural ignorance, if we are wrong. Whatever the material is, it is well seen and nicely placed to bring about an effective pattern. The graininess of the print and the softening of the definition would indicate a high degree of enlargement. Quite obviously, it would be better to obtain a larger image on the negative and thus maintain technical quality. Apparently, the lighting was planned to emphasize the outline of the petals. This is good, for it plays up the most interesting aspect of the blossom. Unfortunately, the strongest highlights are in the upper right and at the left upper edge of the print, and this has a tendency to pull the eye up to these points and away from the natural center of interest . . . which is the heart of the blossom. Ideally, of course, the lighting emphasis should be at this point. It would also seem that a slightly more vigorous lighting would be appropriate, for the whole thing could stand a little brightening up. We suspect, however, that possibly this general lack of brilliance is due to the high degree of enlargement, rather than to any shortcomings in the actual lighting.

Data: 3¼" x 4¼" Graflex Series B; 15 Cm. Zeiss Tessar; Portrait Pan film in D-76; 11 x 14" print on E. K. Kodabrom G. in Amidol; partial Sulphide toning.

Fourth Award

Advanced Class

Wm. Hart,
Pasadena, Calif.

■ One of our greatest pleasures in these Competitions is to find a picture in which the photographer has fully sensed the implications and possibilities of his material and has consequently built his composition, not on copy book rules, but on his feeling and understanding for what was before his camera. That is the way the real artist works and it is the only way that truly stimulating arrangements are arrived at. Mr. Hart has used an extremely simple form here but it is interesting and effective because of the very pronounced movement which it contains. This is almost a wavelike motion . . . a sweep diagonally upward from the lower left followed by a swing to the leftward. Notice how this leftward swing is repeated in the shadow line which is just below the crest of the dune. The placing and direction of the figure shows sound feeling; many would have turned the figure to the right so that its direction would oppose the movement in the dune. We think that things are much better this way because now the figure does not stop the movement but simply holds it within the picture space. With things as they are, the imagination is free to move onward into the space beyond. If the direction of the figure directly opposed the movement of the dune, that desirable freedom would be lost.

Data: 10½ x 11″ print toned.

Fifth Award

Advanced Class

"John Hartwig"
Fred P. Wilcox.
San Francisco, Calif.

■ This portrait has good modeling. The hand is well posed and nicely controlled as to tone value. The pipe is sufficiently relieved from the background so that its structure is maintained, a condition which too often is absent in pictures of this sort. The bright scarf could easily have caused trouble but it has been kept nicely under control. The smoke is well rendered but is a bit too strongly directional; that is, it shoots upward as if under forced draft. The photographer is always under a temptation to arrange a hat or cap with an eye toward where its cast shadow will fall; in his concern about that there is danger of his forgetting that the cap should fit naturally on the head. We feel that this cap looks a bit as if it were perched on the head rather than naturally in place. If the cap is not to be in the position in which it is naturally worn, it should be thrown well back into the next natural position. It is usually possible, however, to let the model wear the cap naturally and to adjust the cast shadow by the lighting arrangement. We think a little more space at the top would help here and the print proportions could then be maintained by adding a corresponding amount to the left.

Data: 4 x 5″ Illustrators Special; 180 mm. lens; Agfa Isopan film; 11 x 14″ print on Gevaert Gevaluxe.

"Green Pastures" *Everett Petterson, Modesto, Calif.*

First Award—Amateur Class

■ This picture has a very strong emotional impact, which for us appears to be due to the feeling that the clouds loom up out of a tremendous void behind the hill. It is truly a miracle that there are no awkward appearing sheep in this large flock, for photographers are continually plagued by one or more of the animals in a large group appearing in an attitude which catches the eye. The way the sheep have grouped themselves along the skyline at the left is particularly happy, and the thinning out of the flock toward the right is also helpful for it tends to check the directional force of the skyline and eliminates any tendency of the eye to run out of the picture at the right. The cloud forms are both luminous and dramatic but the large break between the largest mass and the mass at the left edge is unfortunate. We want an opening in the clouds which invites the imagination to travel onward but this one is not ideal. Placed as it is it interferes with the movement of the eye from the left toward the top of the hill, which the directional positioning of the sheep and the nature of the skyline initiates so beautifully. Also, the opening is too large, causing too much separation between the principal cloud forms so that the one on the left looks rather "tacked on." Ideally, the opening between the clouds should be slightly to the right of the peak of the hill, for that is where we want our point of emphasis to be and that is where the directional movement set up by the nature of the skyline and the disposition of the sheep should culminate. Aside from a small break at the point indicated, it would be best, ideally speaking, to have the cloud forms fairly well knit so that the opening indicated would be the only pronounced break in their structure.

Data: Speed Graphic; E. K. Super Panchro Press, in D K-20; 1/50th sec. at F:16, with K-2 filter; 11 x 14″ print on E. K. Kodabrom G-3 in D-72.

"Wrinkles—Death Valley"
Jack Cannon,
San Francisco, Calif.

Second Award

Amateur Class

■ Mr. Cannon shows a fine camera eye in selecting his point of view so that the directional lines of the many gulleys all take the eye inward and toward the point of emphasis in the upper right third of the picture space. The small peak at the upper left edge competes too much with the proper point of emphasis. If we trim away the shadow side of this and slightly darken the sunlit side by dodging, we eliminate it without losing anything necessary to the picture. It is well to realize that this picture is complete with only the material seen in the lower three quarters of the picture space. Things would be better if it were possible to replace the dark mountains in the upper quarter of the picture with sky. This dark area at the top weakens the point of emphasis and introduces undesirable complications. Unfortunately, even such a fine photographer as Mr. Cannon cannot move mountains and failing that there seems to be no opportunity for satisfactorily eliminating the material at the top. A lower viewpoint appears impractical; trimming does not work since the picture then looks crowded at the top, and we hardly think that a change in focal length or camera position could bring about the desired result. Consequently, we feel that with the slight trimming at the left, this material is presented as effectively as possible.

Data: Super Ikonta C Agfa Supreme film; 11 x 14" Bromide print.

"Barbados Harbor Policeman"
Dr. M. J. Futterman,
New York, N. Y.

Third Award

Amateur Class

■ We think that Doctor Futterman shows fine judgment in his handling of this subject. The low camera angle emphasizing the peculiar hat is all to the good, and it also appears to present an interesting aspect of the face. The tilt of the head is helpful in putting a suggestion of action into the pose and the placing of the head in the picture space is fine. As is the case with almost all pictures, we can find small details that might be improved upon. It would help if the subject's left arm had been extended so as to fill in "the gutter" in the lower right corner. An outdoor subject, such as this, would seem to call for good definition throughout and, consequently, if more depth of field could have been obtained, things would be better. This would be particularly helpful in differentiating the ears from the hat brim. We also believe that the feeling of bright sunlight might have been more strongly suggested if the shadow area beneath the hat had been allowed to go a little bit deeper in tone.

Data: 3¼ x 4¼" Auto Graflex; E. K. Panatomic X; 13 x 16" print on Artex K-32 in Glycin.

Fourth Award

Amateur Class

"Iced Over" — *Dr. J. O. Fitzgerald, Jr., Richmond, Va.*

■ The three tree groups in the foreground are nicely handled here, and the mood of the scene is well caught. This picture presents a very nice problem in the fine adjustment of a composition so that the movement of the eye is well controlled. Let us follow that movement: the eye first takes in the three tree groups in the foreground, and then moves diagonally leftward from the lower right following the stream which turns to the right near the left edge of the print. At this point, the directional force of the tree shadows reinforce the direction of the brook so that there is a considerable directional force toward the upper right. Notice that the highlight near the top edge of the print, just to the right of the largest foreground tree, has the effect of working against the directional thrust to the right and tends to invite the eye to move once more to the left as it approaches the right edge of the print. It is obvious that the amount of space on the right determines the force of the directional movement in that direction, for the longer it continues the more momentum it builds up. The problem then boils down to adjusting that space so that the highlight mentioned is strong enough to hold the eye. For us, at least, there is now a little too much space on the right and there are two natural points to which we could trim in; the first would be a trimming which would place the second tree in from the right at the edge of the print; the second would be a more drastic trimming which would place the tree which is directly behind the partially snow-covered log, on the right edge of the print. Some will feel that the less drastic trimming is a sufficient correction; others, that the deeper trimming is necessary to firmly hold the eye within the picture space. On the whole, we are inclined to feel that the lesser of the two trimmings is most desirable.

Data: Leica; 50 mm. Summar; 1/100th sec. at F:9; E.K. Panatomic X in D.K. 20 with Omag No. 2 Yellow filter; 11 x 14" Chloro-bromide print.

Michael J. Roll, Detroit, Mich.

Fifth Award

Amateur Class

■ Winter is a great simplifier of landscapes and this picture appears to be a satisfactorily revealing comment on that fact. The camera angle has been well selected so that the spacing of the row of trees, not only within the picture space in general but also with respect to each other, is nicely established. We would like to trim in from the left to eliminate the stairway on the near side of the house, for this tends to catch the eye and we would like to trim up from the bottom to a point slightly above where the shadow of the first tree cuts the right edge of the print—to reduce the expanse of foreground and thus avoid monotony. It is unfortunate that the figure gets a little mixed up with a tree, which tends to reduce the effectiveness of the figure as the point of principal interest. If the dark figure could have been shown entirely against the white house, or against the snow, it would stand out more strongly.

Data: 2¼ x 2¼ Rolleiflex; F:3.5 Zeiss Tessar; 1/100th sec. at F:22; film not specified. 11" x 14" print on Defender Velour Black in D-72 Gold Tone.

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won prizes for their clubs in the Advanced Class: Fred P. Wilcox for the Aremac Camera Club; R. D. Kaufman and William Hart for the Pack Rats; Wm. A. Garnett and Maurice J. Schlatter for the Pasadena "Y" Camera Club.

The following won prizes for their clubs in the Amateur Class: Jack Cannon for the California Camera Club; Dr. J. C. Fitzgerald, Jr. for the Camera Club of Richmond; Michael J. Roll for the Detroit Camera Club; Dr. M. J. Futterman for the Miniature Camera Club of New York; and Everett Petterson for the Modesto Camera Club.

Contributing Clubs

Alameda Photographic Society (Calif.)
Aluminum Camera Club (New Kensington, Pa.)
Amherst Camera Club (Mass.)
Aremac Camera Club (San Francisco)
California Camera Club (San Francisco)
Camera Club of Richmond (Va.)
Camera Club of San Pedro (Calif.)
Caterpillar Employee's Camera Club (San Leandro, Calif.)
Clarinda Camera Club (Iowa)
Concord Camera Club (Calif.)
E. P. I. C. Pool of San Francisco
F:2.5 Club (Denver)
Fort Dearborn Camera Club (Chicago)
Fort Wayne Camera Club (Ind.)
Light and Shadow Club (San Jose, Calif.)
Manhattan Camera Club (N.Y.C.)
Miniature Camera Club of New York
Missoula Camera Club (Mont.)
Modesto Camera Club (Calif.)
Museum of Science Photographic Club (Buffalo, N. Y.)
North Shore Camera Club (Evanston, Ill.)
The Pack Rats (Pasadena, Calif.)
Palo Alto Camera Club (Calif.)
Paramount Camera Club (Los Angeles)
Pasadena "Y" Camera Club (Pasadena, Calif.)
Photographic Society of India (Bombay)
Photographic Society of Philadelphia
Photographic Society of San Francisco
Queen City Pictorialists (Cincinnati, Ohio)
Rothschild Camera Clinic (Los Angeles, Calif.)
St. Louis Camera Club (Mo.)
Snake River Camera Club (Nampa, Idaho)
Vancouver Photographic Society (Vancouver, B. C.)
West Alles Photographic Club (Wisc.)
Y. M. C. A. Camera Club (Victoria, B. C.)

STANDING OF CLUBS

Large Clubs—Advanced Class

California Camera Club	5
Manhattan Camera Club	3
Fotoklub Ljubljana	2

Small Clubs—Advanced Class

Pasadena "Y" Camera Club	34
The Pack Rats	16
Signa Phi Nothing	7
E.P.I.C. Pool of San Francisco	5
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2
Aremac Camera Club	1

Large Clubs—Advanced Class

Miniature Camera Club of New York	17
California Camera Club	12
Detroit Camera Club	9
Photographic Society of San Francisco	6
Amherst Camera Club	5
Oakland Camera Club	4
Camera Club of Richmond, Inc.	2
Green Briar Camera Club	1

Small Clubs—Amateur Class

Dallas Pictorialists	5
Modesto Camera Club	5
San Marino Camera Club	5
Camera Club of San Pedro	3

SUMMARY OF COMPETITION RULES

1. Open to all, amateur or professional, club member or non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue.

Club Notes

Photographic Instruction

The U. S. Camera Yosemite Photographic Forum

Under the Personal Direction of Ansel Adams

It would be difficult indeed to imagine a more ideal setting for the study of photography than Yosemite Valley, California's most photogenic beauty spot. When we add to this wonderful location instructors of such eminence as Ansel Adams, Rex Hardy, Jr., Charles Kerlee, Dorothea Lange and Edward Weston, the set-up takes on the proportions of a photographer's dream.

Two short courses are planned. The first to run from June 16th to June 30th inclusive. The second from September 1st to 15th inclusive. Students can sign up for a minimum of one week, and there will be sufficient variation between the first and second course so that all four weeks can be taken without undue duplication.

Tuition fees are as follows: One week $50.00, Two weeks $85.00, Three weeks $125.00, Four weeks $150.00. Costs of transportation, accommodation, and meals in Yosemite, and of equipment and materials will be additional.

The chief object of the U. S. Camera Yosemite Photographic Forum is to stimulate interest and awareness in the finest forms of photographic expression; to increase the participants' capacity to "see," and following an enhanced "seeing," to develop the actual procedure of making a good photograph.

The mood of the courses will be one of serious study, enjoyment of the out-of-doors, and simple, informal living.

For full details see U. S. Camera Magazine, No. 9, May 1940, or write Ansel Adams, Yosemite National Park, Calif.

P. Douglas Anderson's Field Trip Courses. The University of California, Extension Division, announces that these immensely popular, practical courses will begin in June. Each course will include five class meetings and four field trips. At the class meetings the students' photographs, taken on the field trips, will be constructively criticized. The first meeting of each course will be devoted to organization and planning of field trips. San Francisco organization meeting will be held Thursday, June 13th, and the Oakland meeting Friday, June 14th. Mr. Anderson will also conduct the Yosemite Field Trip Course, July 15th to 20th, inclusive. This course offers a week's intensive instruction in outdoor photography in beautiful Yosemite Valley. Organization meeting will be held in San Francisco on Tuesday, June 11th. For further details write or call at the University of California, Extension Division, 540 Powell St., San Francisco, or 1730 Franklin St., Oakland, Calif.

The Second Series of Loeber's Free Photographic Courses will begin this month. Beginners' course will start May 24th; advanced course on May 27th. Inquire at Loeber's, 70 Post St., San Francisco, for complete details on these classes conducted by C. Stanton Loeber and Jack Cannon.

A beginner's class in photography is now being conducted by the Women's Photographic Society of Cleveland, 402 Finance Bldg., Cleveland, Ohio. The class, covering the elementary phases of photography, meets each Friday evening. An advanced class meets on Wednesdays.

The Pottawattamie Camera Club, 7340 No. Rogers Ave., Chicago, Ill., is now conducting an elementary course in photography, without cost to members.

The Photo League, 31 E. 21st St., New York City, conduct many special group meetings and classes. Among these is a Documentary Photography Class, under the direction of Sid Grossman. To our knowledge, this group is unique among photographic organizations and as government work has created great interest in documentary photography, these classes should be well attended. Details may be obtained from the above address.

The Maywood Camera Club, Maywood, N. J., is conducting a Beginner's Instruction Group, under the direction of Irving Toennies. Meetings are held twice monthly, on Wednesdays.

Contests

The attractions of San Francisco's park system will be the subject matter of a contest, sponsored by the San Francisco Convention and Tourist Bureau. The winning prints will be used as illustrations for a new Golden Gate Park folder. Rules may be obtained from the Park Lodge, Stanyan and Fell Sts.

An amateur snapshot contest open to all amateurs living in Fayette County, Pa., is being jointly sponsored by the Uniontown Camera Club and the Herald & Genius, the district's leading newspaper. Details may be obtained from V. H. Beaumont, secretary, 156 Walnut St., Uniontown, Pa.

$800 in cash awards will be offered at the First Annual Tri-State Amateur Photo and Camera Show, to be held at The Gardens, Craig St., near Fifth Ave., Pittsburgh, Pa., June 12-15th, inclusive. For details write the Harris Amusement Co., Wm. Penn Hotel, Pittsburgh, Pa.

Club Activities

A Kodachrome Jam Session was the feature of a recent meeting at the Brooklyn Institute, 30 Lafayette Ave., Brooklyn, N. Y. Photographers were invited to bring Kodachrome 35 mm. slides for projection and also to join a round table discussion of their experiences and problems in color work.

FORTHCOMING EXHIBITIONS
SEE MAY
CAMERA CRAFT
Will be published next in the July Issue

The Cinema Club of San Francisco, Calif., announce their Annual Vacation Picture Contest for members. Entries are limited to a maximum size of 400 feet of 16mm., or 200 feet of 8mm., in either black and white or color. Members are given ample time to prepare their films, as the judging is done at an October meeting.

The Marin Camera Club, San Rafael, Calif., are being offered the unusual opportunity of visiting the Air Corps Photographic Laboratories at Hamilton Field. The tour will be conducted by Lt. Arthur V. Jones, Jr., public relations officer, and the club members will also be entertained by several interesting demonstrations.

The Miniature Camera Club of Philadelphia, Pa., recently enjoyed a very successful field trip to the Philadelphia Zoo. Benefiting by the thorough-going cooperation of the Zoo's attendants, the photographers were abel to get many unusual pictures and also some nerve-tingling thrills. If your group is planning a similar outing, be sure to follow the Miniature Camera Club's example and obtain the zoo's official cooperation, as it opens up the picture possibilities tremendously.

Edward P. McMurtry, F. R. P. S., famous pictorialist and outstanding exponent of the carbro process in this country, will lecture in San Jose, Calif., on Sunday, May 19th, at 3:00 p. m. Mr. McMurtry's talk, which will be given in the Little Montgomery Theatre, Civic Auditorium, will be jointly sponsored by the Light & Shadow Club and the San Jose Camera Club.

The California Camera Club of San Francisco, Calif., will hold a gala outing on Sunday, June 2nd. Members will visit the winery and vineyards of the famous Italian Swiss Colony at Asti, Sonoma County, Calif. Jack Cannon and an exploration committee recently visited Asti and report an excellent variety of picture possibilities. Through the courtesy of the Italian Swiss Colony officials and Enrico Prati, vice-president and general superintendent, the club members will have every opportunity to photograph the premises, inside and out. An outdoor barbecue pit, picnic tables and wine donated by the company will make luncheon a festive occasion. Attendance is limited to members of the California Camera Club.

The Photographic Society of San Francisco previewed the 1940 Exposition, on Treasure Island, in San Francisco Bay, on a recent field trip. The absence of crowds enabled the club members to obtain many unusual photographs.

The Duke - Durham Camera Club, Duke Station, Durham, N. C., held a "Photographic Quiz Night" at a recent meeting, which was unanimously acclaimed as the most interesting program in years. The first part of the "quiz" was written, the majority of the questions being the "true or false," "yes or no" type. Then the members were divided into two teams for a spelling bee oral "quiz." A prize was given to the member who won individual honors for the evening.

Exhibitions

The Miniature Camera Club of Philadelphia, Pa., are exhibiting their Club Show at the Franklin Institute, Philadelphia, during the entire month of May.

New Clubs

The F:4 Photo Club, of Makaweli, Kauai, T.H., will welcome communications from other groups. Address correspondence to the F:4 Photo Club, c/o David S. Lim, Secretary, Makaweli, Kauai, T. H.

A new camera club was recently organized in Palo Alto, Calif., for users of 35mm. cameras only. Details regarding the new group can be obtained from S. J. Wilkin, secretary-treasurer, 1160 California Ave., Palo Alto, Calif.

Announcements

The Photographic Group of Philadelphia, Pa., is now conducting a drive for new members. An ambitious program is scheduled for the comming year as the group plans to renovate their darkrooms, purchase new equipment and inaugurate a series of classes for both beginners and advanced workers. Meetings are held every Tuesday evening, 8:00 P. M., at the Grant School Bldg., 17th & Pine Sts. For further details write Miss Ruth Wotiz, 1212 Integrity Bldg., Philadelphia, Pa.

The Camera Club of Maryland, Baltimore, Md., who following the recent trend, have dropped the "Miniature" from their name, are now established in their elaborate new quarters, at 16 W. Hamilton St. Occupying the entire third floor, the quarters have a large meeting room, reception room and reading room. Complete equipment of lights and backgrounds are available for use by the members.

Photographs are wanted for the 1940 Year Book of the American Academy of Sciences, which will contain a Photographic Salon Section. Photographs selected will be bought outright and must be exclusive. Photographs of any subject will be considered and should be 8 x 10" glossy prints. State price and accompany submissions with a stamped return envelope. Address the American Academy of Sciences, Miami, Fla.

A new club bulletin, published by the Retlaw Camera Club 3856 - 24th St., San Francisco, Calif., has been received. The bulletin's name has not yet been selected and a "naming" contest is now being held among club members. Correspondence should be addressed as above, c/o Robert Korn.

The Southern California Council of Camera Clubs announce that the Annual Convention of Delegates will be held on Saturday, June 15th, in the Los Angeles Times Auditorium. Purpose of the meeting will be the election of officers and the outlining of plans for the coming year. More and more clubs are joining this livewire organization and they now have a membership of twenty-eight. Correspondence should be addressed to R. L. Wakefield, Studio 5, 2504 West 7th St., Los Angeles, Calif.

A notation on the Southern California Council Bulletin poses the interesting question of "why not a council in Northern California?" If the clubs in this area are interested in such a group, it would seem that an ideal time for discussion would be at the Western Amateur Camera Conclave to be held in Oakland, Calif., July 25th to 27th, inclusive.

The Ground Glass, club bulletin of the Newark Camera Club, of Newark, N. J., pre-

sents an interesting feature "Twenty Years Ago." Printing the club program for May **1920**, it shows how little club activities have changed. Excepting the emphasis on lantern slides (its Kodachrome now), we find the same field trips and meetings. Eight activities listed in a single month, shows that the Newark Camera Club was a flourishing group in those days too.

The Metropolitan Camera Club Council, 106 W. 13th St., New York City, is pleased to announce that more than twenty new clubs have become members since the first of the year. A drive for new members is now going on and any group in the New York Metropolitan Area is cordially invited to join. A speaker will be sent to any such club on request to explain the function and activities of the Council. For complete details write the above address or telephone GRamercy 7-7855.

The Albany Camera Club, Albany, N. Y., announces the opening of their new darkroom. It is completely equipped with a large sink, trays, tanks, printers, enlargers and many other accessories. The darkroom is available to members without charge.

The Hermitage Photographic Society, 1810 Edgehill Ave., Nashville, Tenn., invites the correspondence of other groups and would like to exchange prints. Print Director is Leon Cantrell, 938 Woodland St., Nashville, Tenn.

The Cleveland Photographic Society and the Women's Photographic Society of Cleveland, Ohio, will have prints permanently on display at Taylor's Photographic Dept., in that city. Prints from the Cleveland Photographic Society will be displayed from the 1st to the 15th and those from the Women's Photographic Society from the 15th to the first.

The Baltimore Camera Club, 601 W. North Ave., Baltimore, Md., recently acquired larger quarters but the high quality of the speakers at recent meetings has made "standing room only" the order of the day or should we say night. At successive meetings the membership was privileged to hear Mr. Harold Harvey, of 777 fame, who spoke on multi-toned prints; Barbara Green, A.R.P.S., who spoke on photographing in Europe; and Mr. J. S. Rowan, who described a new control process which he has developed.

The Camera Club of Oakland, Calif., recently held a field trip to Beringer Bros.' Los Hermanos Vineyards and Winery at St. Helena, Calif., where the members had the opportunity to photograph the winery's famous cellars as well as the rest of the premises.

Notes and Comments

Booklets and Catalogs

A new Abbey Handbook of Flashguns is being distributed free by the Abbey Photo Corp., 305 East 45th St., New York, N. Y. The fifteen page, illustrated booklet describes the Abbey Synchronized Flash Equipment and acessories.

A new 32-page catalog completely describing and illustrating all products distributed by Burleigh Brooks, Inc., 126 W. 42nd St., New York City, is now available without charge.

Willoughbys announce a new free Bargain Catalog No. 440. It covers cameras, lenses, accessories, and home movie equipment. Write for a free copy to Willoughbys, 110 W. 32nd St., New York City.

New Products

A to Z Figurettes make it possible for the amateur movie fan to make professional looking movie titles at minimum expense. Figurettes are made of a linen substance that is durable and they adhere to wood, glass, metal or A to Z tracing paper. They may be removed and cleaned and used again. Thirty general subjects are included in a set, priced at $1.00, and they come in assorted colors. As an introductory offer, one Figurette and descriptive literature of the entire assortment, will be sent without charge. Write Jacob Stein, Dept. C., 175 Fifth Ave., New York City.

The Quick-Set Swing Top (see cut), introduced by the Whitehall Speciality Co., 1755 Diversey Parkway, Chicago, Ill., is a simple, practical accessory that can be used on any panhead or tripod. It enables the miniature camerist to lock his camera securely in any position from horizontal to vertical. Camera position may be changed quickly and easily offering the maximum in versatility. Price $5.00. Write the above address for a free illustrated folder on the Quick-Set Swing Top and also on the Quick-Set Tripods.

Temp-Atrol in use

To help eliminate the guesswork from photographic processing, Temp-Atrol and Company, 8943 South Leavitt Ave., Chicago, Ill., have introduced a device consisting of a rubber nozzle, a thick glass tube containing a thermometer, and a rubber hose 24" long. The nozzle is adaptable to standard mixer faucets having a diameter of between ½" and ¾". The figures on the thermometer scale are magnified to facilitate reading. Temp-Atrol enables the darkroom worker to keep track of the temperature of the running water he uses, and sells for $1.50.

The new S. V. E. Slide Binder for 2 x 2" slides, originally developed for use in the Society For Visual Education's enormous film library, has just been placed on the market. Radically different in design from binders now in use, the S. V. E. Binder has glass the same size as the film, which permits automatic centering in a 2 x 2" fibre cushion frame. To this frame is glued a gummed cover of tough Kraft paper, finished in silver on the outside. The cover holds the glass and film rigidly in place and forms a dust-proof seal. The entire surface of the film is clamped so tightly to the glass that there is no possibility of heat causing the films to warp out of focus. See your local dealer for further details.

Touching up worn spots on the silver surfaces of cameras and accessories is simple with a new silver plating process developed by the Rapid Electroplating Process, Inc., 1414 So. Wabash Ave., Chicago, Ill. The silver plating is brushed quickly on the worn surfaces, providing a durable coating. The process has been practically applied in large industrial plants and is now avaliable for home or camera store use in a new Utility Silver Outfit, Priced at $5.00. Write the above address for descriptive literature.

The new Clarus Camera Model MS-35, a precision built 35 mm. camera has just been announced by the International Photographic Industries, Inc. 615 W. Randolph, Chicago Ill. It has a die cast case, covered with top grain leather, and with all exposed parts chrome plated. It is available with 50 mm. Busch anstigmat lenses, F:3.5 and F:2.8 and telephoto. Focal plane shutter with speeds to 1/1000th, coupled range finder, optical eye level view finder, automatic exposure counter, automatic film transport simultaneous with shutter winding, parallax adjustment, and tripod socket are other features. Price with F:3.5 lens is $59.50.

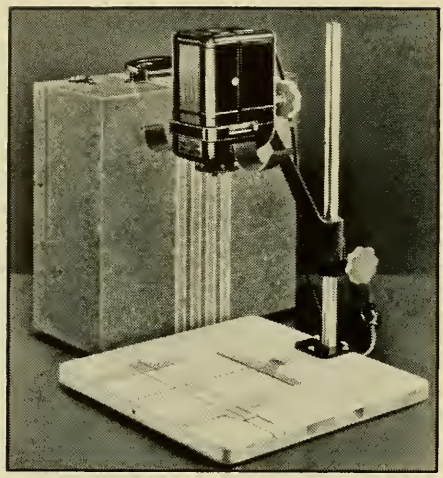
Airkem, a liquid darkroom deodorant, has been introduced by Willoughbys, 110 W. 32nd St., New York City. It permits the camera fan to work in comfort in his darkroom as it overcomes the odors of acetic acid, hypo, developers, etc. Sprayed into the air it quickly provides odorless comfort in the darkroom. 12 oz. bottle 60c, Junior Spray 15c, Senior Spray 70c.

A 60 inch telephoto lens has just been produced by J. H. Dallmeyer, Ltd., who claim that it is the longest focus, largest aperture telephoto lens commercially produced. The new 60 inch Dallon Anastigmat has an aperture of F:8 and is designed to cover 8 x 10 inches. It has a diameter of 8¾ inches and an overall length of 18 inches, weighing 53 pounds. Some idea of its size may be obtained from the illustration showing the

New 60 inch Dallon Anastigmat

new lens beside a 4 inch Dallon F:5.6. Made on special order by Dallmeyer for the Medo Photo Supply Co., 15 West 47th St., New York City, it will be used by one of the largest U. S. news picture companies. The possibilities the new lens offers have led Dallmeyer to list it as a standard product.

New Chess-United Print Dryers have been introduced by the Chess-United Co., Inc., Emmet Bldg., New York City. The Master Dryers are double-faced, drying prints simultaneously on both sides. Available in two models: Model B, will take two 11 x 14" prints, one on each side; Model C, will take four 8 x 10" prints, two on each side. Double weight paper will dry in less than seven minutes and single weight in from three to four minutes. Model B is priced at $13.95 and Model C at $17.95. Further details from the above address or your local dealer.



Kodak Portable Miniature Enlarger

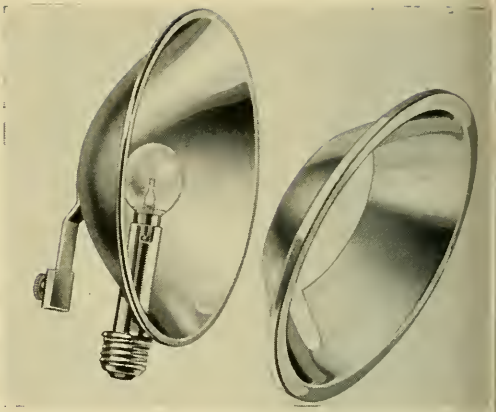
The new Kodak Portable Miniature Enlarger. introduced by the Eastman Kodak Co., of Rochester, N. Y., is ideal for the amateur who lacks a permanent darkroom. It fits neatly into an attractive carrying case, 13½ x 13½ x 6⅛ inches in size and may be assembled for use in a few minutes. The Portable has a triple condensing lens system and is available with a choice of three projection lenses, including a 50 mm. Kodak Projection Ektar F:4.5. Takes negatives sizes 35 mm. (24 x 36 mm) and Kodak Bantam (28 x 40 mm.) only. With lens and case, at prices from $42.50 to $60.00; without lens or case $27.50.

Two new Eastman darkroom aids have been introduced by the Eastman Kodak Co., of Rochester, N. Y. Kodak Flexol, a preparation that keeps prints flexible and prevents curling, can also be used on roll film to eliminate curling and twisting. Kodak Concentrated Acid Fixing Powder, made with anhydrous hypo offers better keeping qualities.

New 35 mm. Kodachrome adapters for 6½ x 9 cm., and 9 x 12 cm., cut film and film pack cameras have been introduced by the Eastman Kodak Co., of Rochester, N. Y. Adapter for either 6½ x 9 cm. or 9 x 12 cm. cameras is $23.50.

A new Rollei Adapter for Bantam Size film has just been announced by Burleigh Brooks, Inc., 126 West 42nd St., New York City. The adapter permits owners of Rolleicord and Rolleiflex cameras to use the economical Bantam Kodachrome roll film. Change from Bantam size to regular 2¼ x 2¼" size is accomplished in a few seconds. Camera must be left with your local dealer who will send it to the Burleigh Brooks workshop. Price including case and instructions is $8.00.

A new contrast grade of Cykora Paper has been announced by Agfa Ansco, of Binghamton, N. Y., which now brings the total to four grades of contrast. The new fourth contrast grade is available in Cykora Glossy only.



Duo Spot Flash Adapter

The Duo Spot Flash Adapter. introduced by Hunter & Co., 1375 Euclid Ave., Cleveland, Ohio, is designed to increase the efficiency and use of that popular little flash lamp, the "Mighty Midget," G.E. No. 5. The Duo Spot Flash Adapter throws a powerful, directed beam of light that makes action shots possible at distances of 100 feet. Spot Flash is fitted with a back bracket for perfect alignment on the following guns: Mendelsohn Delux and other models, Abbey, Kalart, Heiland, Jacobson and Victor. Spot Flash also includes a diffusing ring (see cut) that redirects the light over a wider field for close work and permits the use of the "Mighty Midget" where under ordinary conditions larger lamps would be necessary. Price is $6.95. See your dealer or write the above address for descriptive literature.

New Du Pont 35 mm. Films have been announced by The Du Pont Film Manufacturing Corporation with the introduction of Superior - 1, Superior - 2, and Superior - 3. These three films afford the miniature camera owner a wide choice of speed. All have fine grain size. The color sensitivity of each is fitted to the particular lighting conditions usually encountered in its use. Superior-1 is intended for outdoor use. It is extremely fine grained, has a long scale gradation, and is specially color sensitized for exposure by daylight. Areas of sky register as printable densities without the use of a filter. The speed is about the same as the Superior Pan formerly supplied for miniature cameras. Superior-2 is twice as fast as Superior-1. This recommends its use outdoors in cameras having slower objectives regardless of weather conditions, and lighting. The color response is corrected for an incandescent light source. The grain size, while not quite as fine as Superior-1, is distinctly finer than the old type Superior Pan. Superior-3 is a high speed film intended primarily for interior use where lighting is not controlled. Its color sensitivity takes full advantage of tungsten illumination. The grain size is about the same as the former Superior Pan. Forced development increases the effective speed of this film making exposures possible at a Mazda rating of 100 Weston

George Murphy, Inc.

"Color Prints That YOU Can Make" is the title of a new instruction sheet which has just been released by the Mansfield Photo Research Laboratories. Anyone, regardless of the extent of their darkroom experience, can now convert their black-and-whites into actual color prints, containing all of the intermediate as well as primary colors, without resorting to "masking" local areas of the print with rubber cement, varnish or other protective coating. No complicated chemical solutions or messy bleaching operations are necessary. Natural color is assured as the operator has complete control of the depth and shade of tone at all times. The color toners used are not tints, and the amount of color is therefore in direct ratio to the original silver deposit of the print. Thus the details of the highlights remain clear and the contrast is as brilliant as the original print. This new simple Mansfield Color Print Process is being used by many commercial photographers but is just now being made available to the photographic public. These new instructions may now be obtained at your dealer. A trial sample set of all four color toners, with complete instructions for making color prints, may be secured by sending 35c (to cover cost of packing, mailing, etc.) direct to the Mansfield Photo Research Laboratories, 701 S. La Salle St., Chicaga, Ill.

Announcements

Exhibit Space at the Chicago Trade Show and Conventions is virtually sold at this early date according to a recent report from the managers of this giant photographic meeting. Only 12 out of 225 booths remain and it is questionable that these will still be available when these words are published. The great Trade Show and the Conventions of the National Photographic Dealers' Association and the Photographers' Association of America will take place at the Stevens Hotel Chicago, Ill., on August 19th to 23rd, inclusive. The programs will be in keeping with the spirit of this photographic meeting and will offer the maximum in information and entertainment. The crowd is sure to make hotel accommodations scarce so make your reservations now.

Color prints of unusual quality that reproduce the full range of tones and colors of the original Kodachrome are being offered by the Photochrom Laboratory, 1141 Belmont Ave, Chicaga, Ill. Prints are made by the three-color process. Mr. Frank Miller, who heads this new service, has had many years experience in this field, spending ten years with Eastman and 3 years with American Colortype. Write the above address for further details and prices.

Alterations at George Murphy, Inc., of New York City, began last August, are now completed and they are pleased to announce that the new store offers one of the most modern and complete photographic services for amateur and professional in the country. In addition to the six story building at 57 East Ninth St., the plant has been increased to take in two floors of the building next door. Every convenience for the amateur and professional is available: darkrooms, projection room and an air-conditioned color room. Exhibitions of photographs are continually on display and are changed every two weeks.

Ensign Cameras are distributed in the U. S. by G. Gennert, 20-26 West 22nd St., New York, N. Y. They are currently featuring three models offering a variety of features and prices. The Ensign Full-Vue, featuring

an extra large view finder, is a box type camera, taking 2¼ x 2¼" pictures. Economically priced at $6.50. The Ensign Double 8, folding type, takes 16 pictures 1⅝ x 1¼". With an F:4.5 lens, $17.50. The Ensign Auto-Range, a precision-built camera, with a coupled range finder, takes pictures either 2¼x 2¼" or 1⅝ x 2¼". With either Zeiss Tessar F:4.5 or F:2.8, $72.00 and $90.00 respectively. For complete details on these cameras and others in the Gennert line, write the above address.

Expansion program forces the Devin Colorgraph Co., to move their plant and offices from New York to Burbank, Calif. A new plant is now under construction in Burbank and is expected to be completed soon. In addition to the equipment which is being transfered from New York, thousands of dollars worth of new production machinery will be purchased. The new plant has been specifically designed to meet the production problems of the Devin Company and it will contain four separate divisions: Carbon Tissue Division, devoted to the production of Devin's famous Carbon Tissue: a Camera Division, which will manufacture the Devin Tri-Color Cameras; A Tri-Color Carbro Print Division, for the production of high quality color prints; and a Graphic Art Division.

Rollei Contest will be judged in New York City, due to the European war blockade, announces Burleigh Brooks, Inc., 126 W. 42nd St., New York City, distributors of the Rollei line. American entries, which have been returned to this country, will be judged in the latter part of May by a jury consisting of Kurtz Severin, Phillip Andrews, and Willard D. Morgan. Fifty-one special American prizes will be awarded, totaling more than $500.00. Prize winners will be notified about June 1st.

Two camera supply stores at the New York World's Fair will be operated by the Medo Photo Supply Co., of New York City. One will face the Eastman Kodak Bldg., and one is alongside the Heinz Bldg. Camerafans will find everything to meet their needs as well as experienced help and advice. Medo extends a cordial invitation to all photographers visiting the Fair to call on them.

The Halldorson Amateur Print Washer, manufactured by the Halldorson Co., 4500 Ravenswood Ave., Chicago, Ill., offers the photographer a highly efficient washer that is easy to use. It can be attached to any faucet and will operate in any sink. Water is sprayed into its metal tank producing a whirlpool action that keeps prints separated and circulating. The outlet removes hypo saturated water from the bottom but keeps the water at a constant level. Available in two sizes: 12" $3.95; 16" $4.95. Write the above address for descriptive material.

The Eastman Historical Photographic Collection, the finest ever assembled is now on display at the New York Museum of Science and Industry. The Exhibition is made up of the cream of the famous Cromer collection, acquired last year in Paris by the Eastman Kodak Co., and from Eastman's own large historical collection. Animated displays and lectures that will enhance the public's understanding of the exhibits will also be presented. Every photographer, amateur or professional, will find this comprehensive collection of great interest.

A series of free lectures on photographic subjects are being presented by the Penn Camera Exchange, Inc., 126 W. 32nd St., New York City. The present schedule continues through May, June and July. Call or write the above address for tickets and details on the lectures.

Gevaert Exhibit at the New York World's Fair will again present an exhibition of fine photographic prints. An entirely new set of prints have been collected by an intensive search throughout the world by Gevaert Agencies. No photographic visitor to the New York Fair will want to miss this fine show.

An Alaska Camera Tour will leave Chicago, Ill., on June 27th, for a 19 day tour to Alaska. The tour will be conducted by Donald C. Boardman, Editor of the Collegiate Camera Annual. Detailed information can be obtained from Mr. Boardman, at 73 East Jackson Blvd., Chicago, Ill.

General Electric announces a new photo-electric exposure meter, Type DW-48. It is priced at $21.00 and will be on sale at dealers June 1st. The new meter is designed for easy one-hand operation. It is calibrated to measure light in standard foot-candles and by means of incident light and the hinged cover, its single scale covers a range of sensitivity from .05 to 1700 foot candles per square foot. Features of the new G-E meter are: its locking device on the calculator which prevents change if the meter is placed in pocket or case; the self-multiplier on the calculator which automatically multiplies exposure when the meter is used for incident light, under poor light conditions film speeds up to 800; F stops from F:1 to F:55 and shutter speeds from 1/2500 second to 100 seconds. The simplified calculator will meet the universal demands of still color or cine photography. Accompanying each meter will be a handy vest-pocket sized 110-page booklet giving valuable instructions and data on photography.

The Time Dial is a handy little device that converts any clock into an interval timer. The Time Dial is simply pressed onto the face of any clock. Its face is marked off in minutes and the number of minutes to be timed is placed opposite the minute hand of the clock; then, when the minute hand reaches the "Stop" arrow on the dial the interval to be timed has ended. Price is only 50c. For complete details see your dealer or write Fink-Roselieve Co., Inc., 109 West 64th St., New York City.

$1500 Graflex Golden Anniversary Picture Contest has just been announced by the Folmer Graflex Corp., Rochester, N. Y. The contest is open to all pictures made with Graflex, Graphic or Crown View Cameras and will run from July 4th through Labor Day. 76 prizes totaling $1500.00 in cash will be awarded. Entries may be made in five classes: Portrait and Pictorial; Action News; Industrial and Scientific; and Color (transparencies only).

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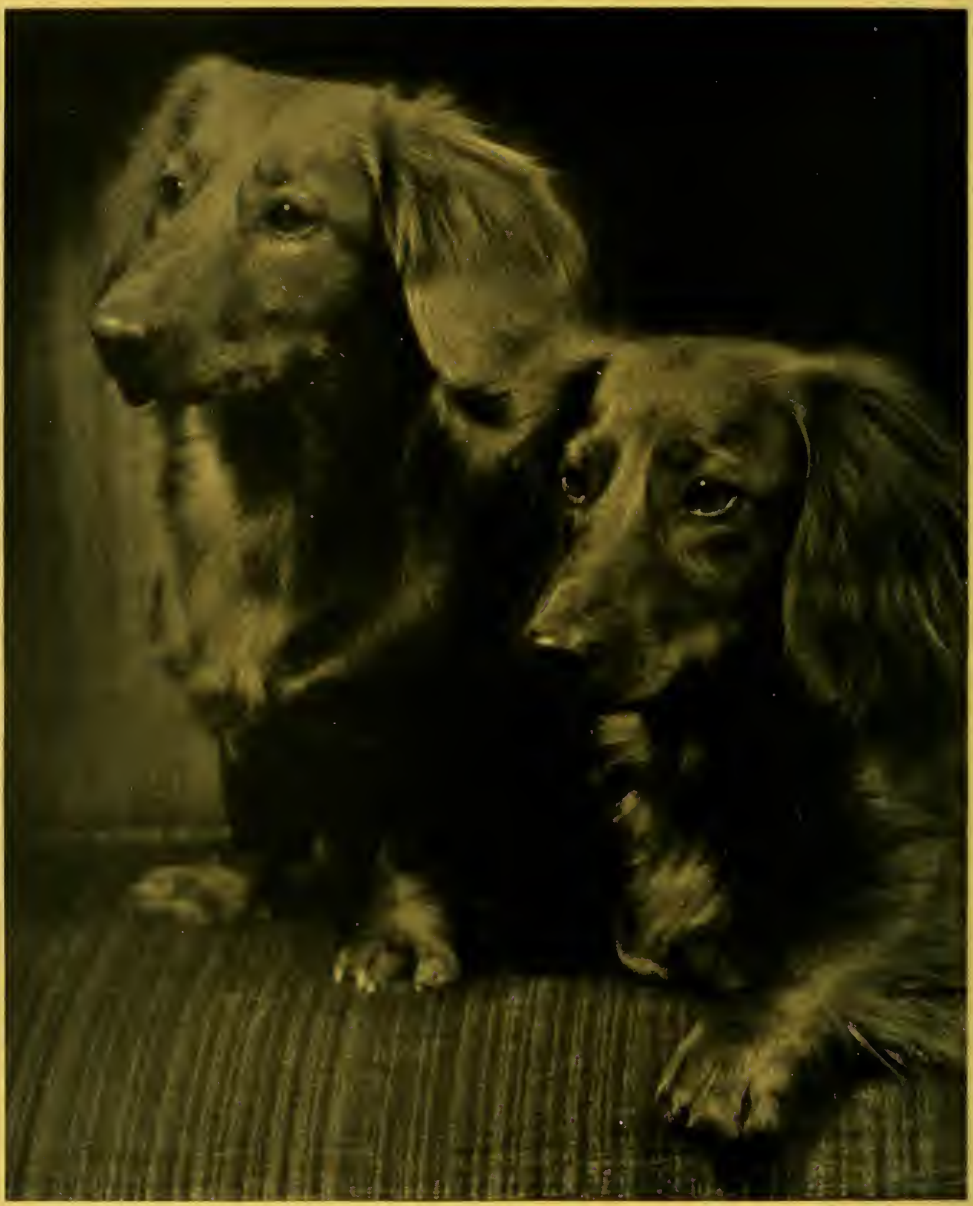


Rowena Brownell, A.R.P.S.

Rowena Brownell

Charlotte M. Estey

FEW names are better known to photographic exhibitors than that of Rowena Brownell. Since 1932 her prints have been hung in almost every important salon here and abroad. She has had several "one man" shows, has made the annuals consistently and had her work reproduced in almost every photographic journal of importance. This year she has prints in both the 100 Print Show sponsored by the Metropolitan Council of the Photographic Society of America and the Fourth Annual 100 Print Show of the society. She has served on juries and won the respect of her fellow photographers for her sound judgment, sincerity and cooperative spirit. And all the time she has had a lot of fun making pictures.

Most beginners in photography become confused after a time by endless and often contradictory success formulas offered them. Their aims are fluid, and they hasten down tempting blind alleys and dead end streets with great enthusiasm but small ultimate success. They are avid readers and explore, often superficially, many processes offered them, hoping to find the perfect technical means of expressing through photographic prints the beauty and emotions they see and feel. Some turning tentatively to the right try diffusion, bromoil, gum, and paper negatives. The leftists experiment with infra-red, X-ray, negative prints and solarization. The more complicated the better, for to the beginner art must not only be long and hard but its processes must be complex. For many neither of these courses produces the results hoped for, and steps must be painfully retraced and a fresh start made.

Rowena Brownell has achieved universal recognition through neither reactionary nor revolutionary methods. She has plotted a straight middle course making beautiful pictures with a direct and honest technique. A well-considered, carefully arranged and lighted group of simple objects, an accurately exposed negative, tank developed, a print projected upon bromide or chloro-bromide paper, exquisitely mounted—that's all there is to

Rowena Brownell, A.R.P.S.

it. It's as deceptively simple as Mozart and beautiful in the same way. For first and foremost Mrs. Brownell is an honest photographer. She plays no tricks anywhere along the way. She uses no underexposed negatives, little if any control in projection and usually prints from the entire negative. She hates fuzzy, arty, sentimental photography. Sharpness, plasticity, correct values and solidity are mandatory.

When marriage and a family interrupted her career as a sculptor Mrs. Brownell turned to photography as a medium of art expression. It is probably her background and interest in sculpture which has caused her to become preoccupied especially with solidity and the third dimension in her work with the camera. Detail and texture are important to her, but secondary to the proper arrangement and lighting of masses. She wants planes to be definite, therefore stops her lens down as far as possible. She deplores the tendency of many beginners to neglect sharpness and values in the foreground.

After fundamentals have been mastered each photographer should adopt an individual course dictated by his understanding of the medium and peculiar need of expression, she believes. An isolationist herself, immune to outside influence, she would encourage this attitude in others.

Although she has few conscious, definite theories she is quite definite in what she likes to do. Still life, objects and materials which she finds about the house are to her stimulating photographic material. Although occasionally she enjoys photographing people, landscapes and animals, her

Rowena Brownell, A.R.P.S.

"Glass Balls" *Rowena Brownell, A.R.P.S.*

principal theme is the representation of surfaces and objects. These have distinct personality for her, and she believes their arrangement and lighting can establish a mood as well as any other subject matter. Her fancy is intrigued by the thought of certain objects in group relationship and she arranges them with utmost care and patience. Lighting is experimented with until the desired result is obtained and the composition satisfactory. Although she has been particularly successful with high key prints, she has no special formula for making them. She simply selects subject material that is light in value and controls the shadows. There is no individual treatment of the negative, but printing paper is selected which will hold to a small range of values. Mrs. Brownell likes to keep all her prints within definite key limits and a comparatively small range. She prefers glossy surfaces.

Her favorite camera is a series D 3¼ by 4¼ Graflex. Sometimes for casual shots she uses a Rolleiflex or her husband's Leica. She likes plates better than films. She has no elaborate dark-room and fits her work into what time is left over from the general business of homemaking.

It all seems rather casual, but the results would indicate boundless leisure and a model dark-room so spotless and technically perfect are her prints. The mounting is also meticulous, although she makes her own cut-out mounts with a jack-knife. Especial care is taken in this final process as she feels it is only fair to the prints to give them all the advantages of attractive presentation. Such precision takes time, so that it is all the more

"Chalice" *Rowena Brownell, A.R.P.S.*

astonishing to learn that Mrs. Brownell is one of our most prolific exhibitors. Some years she has sent out 500 prints. The negatives from which prints are made are comparatively few. Each year she selects about a dozen from her files from which to make exhibition prints.

Salon success is not necessary to her happiness as an artist. She feels she knows when her picture is good and her satisfaction is derived from that knowledge. Her best known prints are "Queen Anne's Lace" (high key) and "High Quest," her dog—(black against black). "High Quest" is her own favorite.

About projection control Mrs. Brownell says: "Values are relative and actuality depends upon them. The time to control them is before you make the exposure. If you tamper with them afterwards you disarrange the system of related tone." About development: "Make your lighting do the work. You lose quality and texture by the system of overexposure and underdevelopment." And sharpness: "There should be no area in a photograph which is not in acceptable focus—the falling off should be slight and gradual for good atmosphere and perspective. A noticeably blurry distance will jump to the eye wherever the plane may be." And in general: "When surface detail is obtained texture results but this does not constitute a picture. Masses and their correct modelling create the picture." . . . "the

"Top of the Morning" *Rowena Brownell, A.R.P.S.*

fact that the camera lens is non-selective is a creative advantage, for then the interpretation is not accidental but deliberate." . . . "keep in mind the relative size of masses and the intended size of the finished print." . . . "many pictures remain small whatever the degree of enlargement." . . . "whatever you do with sincerity is an expression of yourself and becomes of interest for that reason; it is as futile as it is dishonest to try to see with another's eyes."

Women's place in photography is no longer questioned. Especially in exhibitions we find that it is no longer a man's world. But subject matter in prints made by women are apt to result from their environment. This is particularly so in the case of Mrs. Brownell. Rarely does she go outside her own home for subject matter.

Mrs. Brownell has worked eight years without deviating from her straightforward approach to photography as an art expression. She is modern in technique, but impervious to fads, sentimentality and "arty" methods. She considers working in color, but hesitates because she fears loss of the qualities she wants most—solidity and the third dimension. Natural gifts, steadfastness of purpose, scrupulous care and an honest technique—these are the qualities which have made Rowena Brownell one of our most outstanding photographers.

Photographing Animals

Lloyd G. Ingles

THERE is nothing intrinsically difficult about making photographs of animals. A person should possess an outfit which he has learned to use effectively and should familiarize himself with the physical and mental pecularities of his subjects. The problem is not essentially different if one were to attempt photographing landscapes, portraits, nudes, babies, or bums. In all of these, the automatic use of the camera is, of course, important, but so are the physical features, the mental idiosyncrasies, and the various moods of his subjects. The photographer who would succeed must know and recognize these elusive, but nevertheless real, factors in order to have some degree of control over them until the significant moment arrives—and the shutter clicks.

In the case of animal photography, this understanding of the subject is of paramount importance. How to approach animals, how to decoy them to places where they are desired, how fast to shoot them, how safely they may be photographed are only a few of the many questions to which one would like answers when his picture-taking interests become zoological.

The type of information to be desired would differ with every species of living thing; yet, general directions can be given that will certainly help the amateur who is really serious about this interesting and little exploited field of photography. Some of these directions apply to the cameraman himself, but many of them to the animal subjects.

Very early in his experience, the photographer of animals must learn the first and what is perhaps the most important lesson—that of patience. Without it he will very seldom make a picture of an animal that will please himself or his friends, much less win an award in some natural history salon. He must be prepared to wait, and when his subject does not appear or respond to his duplicity he must go back and wait, and wait again. Rarely can an animal be posed—it must be shot when the opportunity comes, for it may never again present itself so favorably. This does not mean that nothing can be done to make the ultimate print a good one: the light can be measured, the stop and shutter setting made, and the position

Figure 2 *Lloyd G. Ingles*

The porcupine, although a sluggish animal, has a quick reflex which necessitates a fairly rapid shutter speed or a very slow one. This exposure was made at 1/100 second.

of the camera relative to background and general composition can sometimes be arranged before the subject appears.

The goats (Fig. 1) were photographed only after they had been slowly and unsuccessfully followed for a long time without the photographer getting closer than fifty yards. Finally, after firmly stationing himself out of sight on the side of a cliff and getting "all set," even to selecting a position so the distant cumulus would appear in the lower part of the picture, he attempted to attract the goats by a series of short sharp whistles. The curiosity of the animals overcame their timidity, and they were soon looking over the cliff at the only place where they could see the camera just as had been planned. Fortunate circumstances figured largely in making this a successful picture, but so did a little knowledge of goat behavior.

The second most important characteristic that a photographer must cultivate if he expects to make pictures of timid animals is the ability to remain extremely quiet for long periods of time and to make all necessary movements very, very slowly. After nearly a week of trying to secure photographs of wild bighorn in western Alberta by hiding in trees or on rocks beside the trail, they were finally brought to within twelve feet of the camera by using a salt bait and by the picture-taker remaining in plain view, but very quiet. Any mammal's sense of smell is so keen that one is rarely hidden by being merely out of sight. In photographing the bighorn ewes (Fig. 3) a slowly working right hand served to wind a new film into place and release the shutter. But even the click of a Rolleiflex compur

Figure 1 *Lloyd G. Ingles*

A series of sharp whistles aroused the curiosity of these goats and brought them to the proper place.

Figure 3. A salt bait enticed these bighorn ewes close to the camera. Timid wild animals require that all movements be made very slowly.

Figure 4. This rabbit, another animal with a rapid flinch reflex, was photographed at one full second in early evening light.

was enough to send them clattering over the broken granite for the nearby cliffs. Rarely would the sheep return in less than an hour and frequently not until the next day. The few exposures that were made of the creatures were possible only because hours were spent in patiently waiting and because cramped muscles did not further alarm the timid creatures by moving while they were yet in sight.

Every species of wild animal presents a peculiar photographic problem which can best be solved by knowing something about the instinctive and mental behavior involved. Skunks and porcupines (Fig. 2) are much easier to approach for an exposure than is a cottontail rabbit, because the former animals do not have to run away for protection as does the latter. All three, however, along with many other small mammals (Fig. 8) possess a very rapid reaction time, and this frequently foils otherwise good exposures. This is very noticeable in the opossum, which, when photographed at close range, will flinch so quickly that any shutter speed between 1/50 second and 1/5 second would invariably show movement. With most small wild mammals, therefore, exposures are generally more successful if made faster than 1/100 of a second or slower than 1/5 second. The faster shutter speeds permit the opening and closing of the shutter before the flinch reflex can start. The slower shutter speeds permit the flinch to be executed when the shutter opens without a significant impression of movement on the film, since the animal generally remains quiet after the reflex until the shutter closes again. The porcupine (Fig. 2) was photographed after it was maneuvered into good light with a broom, by using a relatively fast shutter speed. The exposure of the cottontail rabbit (Fig. 4) was made after it had been decoyed to bait, by adjusting the stop down so that one full second was given. The rabbit was very close and flinched when the shutter opened, then literally froze until it closed again; hence, there is little indication of movement. Had the exposure been made at 1/25 of a second, lack of sharpness would have been the result because the natural reflexes of these animals are much more rapid than those possessed by human beings.

Figure 5. Pets may sometimes be posed appropriately.

Figure 6. Large wild animals are dangerous and hard to approach. Even this half-tame Canadian mountain goat was threatening when this exposure was made.

With a little patience, many animal pets can be controlled while being "posed" for an exposure. Thus the background, elements in the picture, the proper exposure, and camera angle can be studied somewhat. The picture (Fig. 5) of the springer spaniel puppies was thus made after a suitable place was found to "pose" them, and after perhaps a half hour of scolding, petting and pampering brought them into the position desired. Such photographs are not hard to take if the elements of the picture are kept simple and only one or two subjects are tried at once. Complications become overwhelming when three or more subjects are attempted in such a picture.

Some animals are dangerous to photograph and should be approached only with the greatest caution. Beside poisonous snakes, a few of the larger mammals fall into this category. Nearly all animals have means of protecting themselves whether they are the size of a mouse or a moose, but relatively few will actually attack a man. While photographing over seventy species of North American wild animals, the author was charged but once—that time by a moose (Fig. 7) with twin calves. Besides the moose, the bison and the grizzly bear have been known to attack people who get too close to them. Any large mammal, however, may become very dangerous when cornered or when accompanied by their young. The mountain goat (Fig. 6) was partially tamed, nevertheless, it began to threaten the photographer with its dagger-like horns when followed to the roof of a cabin

Figure 7. The moose and certain other large animals must be approached with the greatest caution, otherwise they are easily photographed.

Figure 8. Strictly nocturnal animals are difficult to photograph satisfactorily. This kangaroo rat was snapped after being temporarily stupified by being uncovered in the bright sunlight.

for its picture. The animal causing more casualties than all others, however, is the black bear so common in nearly all of our national parks. It seldom attacks a person unless approached too closely or when it feels its young is imperiled or, in some cases when food is withheld.

Most animals will not strike without cause or without warning, and generally a photographer knows what to do or acts instinctively when a bear sticks out his upper lip, or a moose begins to bristle like an angry dog. Any person with normal instincts knows it is time to stop when a buffalo bull raises his tail. This "proceed at your own peril" is generally exhibited by all kinds of animals, and even the novice knows what they mean. Animal photography is a challenge for those who like the out-of-doors and who like to hunt. Hunting with a camera, however, entails new skills and techniques unknown to the gun hunter. It is more difficult but more thrilling.

Light Chatter

Sidney A. Diamond

NOW that the positions of inexpensive artificial illumination and negative material with incredibly fast emulsions have been so firmly established, indoor photography is a field that is invaded by every amateur. Many of us have had the experience of getting flat, under-exposed pictures under these conditions, and that means that it is important to understand something about light.

"Round and Round" *Harry A. Falk, New York City*

22nd Los Angeles International Salon

Light is funny stuff at best—principally because it isn't "stuff" at all. The currently accepted working theory of light is that it consists of a wave motion in a purely hypothetical substance called "ether." (This has absolutely no relation to the liquid used to put you to sleep before a surgical operation, by the way.)

Ether pervades all matter. It is found in the minute spaces between the molecules that make up solids, liquids, and gases alike. It is even present in vacuums, like those found in the vast reaches of inter-stellar space.

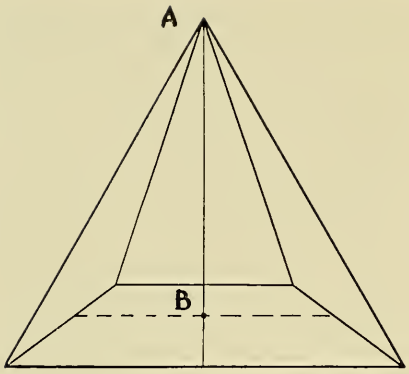


Figure 1.

Diagrammatic representation of area covered by light source at point A. Distance from A to B equals ten feet.

This conception of light as a wave motion in the ether puts it in the same class with sound, radio, and the ripples on a pond. We can understand it more easily that way, and the theory explains the ordinary phenomena of illumination very satisfactorily. Of course, it doesn't satisfy an Einstein, but after all, the theory of relativity has little if any application to the problems raised by amateur indoor photography.

Before we get too esoteric, it would be a good idea to limit the scope of the present discussion. The principle to be examined is essentially very simple, but because it is not immediately obvious—because our normal experience does not indicate its existence—it very often causes trouble in photography by artificial light.

The situation is best presented by means of an example. Imagine a pyramid one foot high, standing on a square base (Fig. 1). Then suppose that the pyramid is lifted one foot, and a new base is built, extending the lines of the sides along their original directions (Fig. 2). The apex of the pyramid is now twice as far from the base as it was originally. It may not sound right at first, but if you will think carefully it will become apparent that the new base will have to be, not twice, but four *times* as great in area as the first one.

Light coming from a controlled source, such as the reflector which the home photographer ordinarily uses, behaves the same way. Its direction is controlled, so that it covers a limited area. This may be compared to the base of our first pyramid.

Now imagine that the light source is moved twice as far from the subject. The rays can then spread farther, although they continue to move from the reflector along the same boundary lines. And they cover an area four times as large as the original one, although the lamp itself has been moved only twice as far away.

Of course, the intensity at the source remains constant. The situation is that the same quantity of light is now falling on four times as much territory as it did before it was moved. Obviously, at any given point, it is only one-fourth as bright as it was. Converted into an illustration in photographic terms, we have the following:

If an exposure of one second is correct with the light source ten feet from the subject, the proper exposure when the light is moved to *twice* the

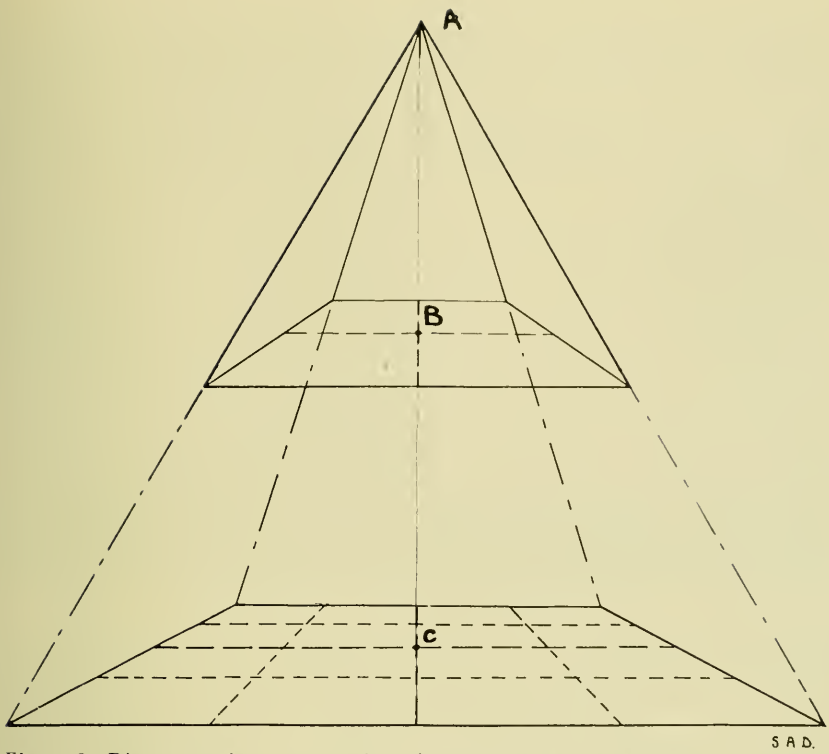


Figure 2. Diagrammatic representation of area covered by light source at point A. Distance from A to B equals ten feet. Distance from A to C equals twenty feet.

distance, or twenty feet, will be *four* seconds, instead of the two you might have expected.

You may have been thinking while reading this that the same principle should apply when the *camera* is moved away from the subject, leaving the light source stationary. Our experience teaches us that this is not so—but why?

As the camera is moved back, the image occupies a proportionately smaller area on the film. The light reflected from each square inch of the subject falls on a progressively smaller portion of the film as the camera distance is increased. Since it acts on a more limited area, it need not be as brilliant in order to affect the emulsion to an equal degree. This concentration of the light on the film balances the diminution of its strength which results from the increased distance, and the exposure therefore remains practically constant.

It is necessary to say "*practically* constant" because there is still another variable to be considered. As the distance from camera to subject is increased, the distance from lens to film must be *decreased* in order to maintain correct focus. The shorter path that the light must travel *inside* the camera decreases the exposure somewhat. This may ordinarily be disregarded, since focussing movements are very minor in the usual situation. It is only when taking an extreme close-up, with a long bellows extension, that one must be careful to give an increased exposure.

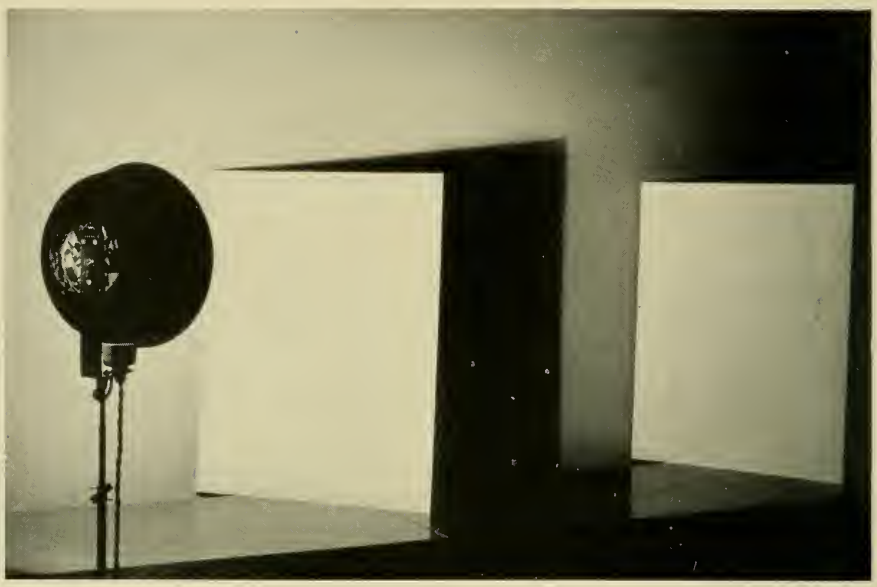


Figure 3. Photograph demonstrating falling-off of illumination at increased distances from light source. The camera angle necessary to show the surfaces of the sheets of white cardboard introduces a distortion of perspective, but, by actual measurement, the distance from the light source to the first test object is three feet; from the light source to the second test object is six feet.

The reason that moving a light source causes difficulty is that the human being doesn't notice how great a difference there is between the intensity at the two positions. Outdoors, we never run into the situation, because the changes in the sun's distance from the earth don't even approach a two-times variation—not by many millions of miles. Indoors, the excellent mechanics of the iris of the eye, working without the brain's awareness, take care of even greater variations so effectively and so instantaneously that we are fooled. Judgment is thrown off, and mistakes in exposure are easily made. So figure it out with a tape-line instead of guessing, and your indoor pictures will come out properly timed much more often.

Of course, if the light source is moved to such a distance that a four-second exposure instead of a one-second exposure is indicated, the compensation may be made in other ways. Opening the diaphragm of the lens one stop cuts the exposure time in half. Therefore, if the lens is opened two stops, one second will remain the proper time to expose your negative. Similarly, using a film four times as fast will keep the exposure at one second. And, of course, the compensation may be made by changing more than one of these variables. For example, the time might be increased to two seconds and the diaphragm opened one stop. The exposure would then still be correct.

The mathematicians and physicists express this principle in terms of a formula: Intensity varies inversely as the square of the distance. Bear it in mind, and your percentage of successful indoor photographs will show a welcome increase.

Shooting Color At The Fair In '40

Nestor Barrett

THE Golden Gate International Exposition on Treasure Island in San Francisco Bay continues, offering the photographic amateur 128 more days in which to get those shots he missed last year. Those who will be seeing it for the first time will find a fairyland of rich and glowing color to capture with their cameras. These latter will be most fortunate because they will have at their disposal the collective knowledge of last year's shooting to help them guide their exposures.

While data gathered and compiled on a basis of color shots made last year is valuable, it cannot be taken as an exact guide as to what to do this year, for the buildings have been painted in radiant colors and sparkling harmonies meant to symbolize California's varied landscape. Last year the exposition buildings were nearly uniformly a single tone, now they vie with the rainbow in color contrasts.

The rules for exposing Kodachrome in daylight at the fair are those familiar to everyone using it; that is the normal exposure for all outdoor subjects is in order. It should be borne in mind that Treasure Island is only a few feet from the surface of the water in the bay, it has a sea coast horizon and consequently a slightly smaller stop than that used for ordinary landscapes is in order. Halfway between f:8 and f:11 at 1/30 of a second will be in order for many of our shots, with a few at f:11 where the dazzling white Tower of the Sun is seen against a cloudless sky.

While Treasure Island is a rich source of photographic scenes in the daytime, it is at night that it becomes a breath-taking vision of beauty, a rich symphony of delicate shadings which make the photographer's pulse skip a few beats for fear that he may miss some of the many enchanting vistas which spread before him on every side.

Your first view of the fair will be of the massive Elephant Towers at the Portals of the Pacific. These are well lighted so that your exposure here will not need to be as long as some of those inside. Assuming that all the exposures that follow in this article are based on Type A Kodachrome, unless otherwise noted, a very excellent color rendition of the Towers can be obtained with seven seconds at f:5.6.

Once inside the grounds our picture making can start at the Court of

Figure 1. "Elephant Towers." 7 seconds at F:5.6. About right for this subject.

Figure 2. "Tower of the Sun." 7 seconds at F:5.6. Recommended exposure for the tower only, 5 seconds at F:5.6, for tower and darker surrounding objects 14 seconds at F:5.6.

All exposure times are for Type A Kodachrome.

the Moon which presents one of the most perplexing problems in exposure that will arise at the fair. Here the illumination is principally by blue fluorescent lamps rich in ultra-violet light. Meidel Applegate of the Camera Shop in Berkeley, California, an advanced amateur photographer, made some very beautiful slides of this part of the fair at an exposure of 16 seconds on Type A Kodachrome, using f:6.3 as his stop. He did something in addition to what most amateurs do, and that was to place a Wratten 2A filter over his lens when making his exposure. This filter is practically colorless and absorbs all ultra-violet and violet rays below the 410 millimicron wavelength. By using the 2A filter Mr. Applegate eliminated the overall turquoise effect which many amateurs get when photographing this scene. When using this filter no increase in exposure time is necessary. If Type B Kodachrome is used the exposure will be about 30 seconds at f:6.3.

Our next shot will probably be the Tower of the Sun and here we face a neat problem not present last year when the Tower was a pale lemon-yellow tint. This year it has been painted white. This tends to make the Tower "burn up" by the time some of the deep blues register which are on either side. If you want the tower only and are satisfied with a low level of visibility in its surroundings five seconds at f:5.6 will be about right. Fourteen seconds at f:5.6 will give a good average for the scene and catch the fountain in the foreground in excellent color.

The Court of Pacifica has the great 80 foot statue of Pacifica backed by a screen which changes colors constantly, but the intervals between changes are sufficient to allow considerable time exposures to be made. For the statue alone seven seconds at f:5.6 will do, for the long shot along the Court of Seven Seas looking toward Pacifica 20 seconds at f:5.6 will give good detail but result in overexposure of the statue proper.

In this Pacifica Court is also found the great mural "The Peacemakers." 58 by 144 feet it symbolizes the slow march of mankind toward peaceful ideals. Twelve seconds at f:5.6 will capture this magnificent work of art in all its rich coloring.

Figure 3. "The Peacemakers." 14 seconds at F:5.6. Recommended exposure 12 seconds at F:5.6.

Figure 4. "Court of the Moon." 12 seconds at F:6.3 with 2A filter. The slide is a trifle dark. Recommended exposure 16 seconds at F:6.3 with 2A filter. Photographed by Meidel Applegate.

The foregoing are the principal points of interest but there are innumerable other beauty spots. In the Court of Flowers, for instance, there is a vista which includes the Fountain of Life and the Arch of Triumph. Twelve seconds at f:5.6 will get all the rich color harmony this scene possesses. Just East is the Tower of the East in the Temple Compound (in fact there are two towers). The rich gold color with lavender setbacks will require a 15 second exposure at f:5.6.

If you have a camera equipped with the f:2 lens your exposures will be as small as one and two seconds if you wish. This need not discourage the man with the stop f:6.3 as his maximum for he can simply give the necessary increase in time. This is not the disadvantage it may seem as the long exposures needed will eliminate most of the people from the scene since, if they are moving, they will not remain in one place long enough to record on the film.

Here is a table which summarizes the average exposure to be used at night at the exposition. Bear in mind that it is an *average* and that the different colors affect the film in varying degrees. The reader will be repaid if he uses the more specific advice which precedes this table as it is based on actual Kodachromes made since the exposition opened this year.

EXPOSURE TIME IN SECONDS FOR KODACHROME AT TREASURE ISLAND AT NIGHT*

Aperture	f:1.5	2	2.8	4	5.6	8	11	16
Type A, 35-16-8 mm.	.75	1.5	3	6	12	24	48	96
Type B, Cut film	1.5	3	6	12	24	48	96	192

No filters used.

What about movies? Every movie fan will want to shoot the fair at night also, but results obtained with color film are not too encouraging. In the brightest portions of the grounds f:1.9 and half-speed may give

**The above table can be used to calculate exposures for black and white. Consider the exposures given for Type A Kodachrome as based on a Weston rating of 12. If you are using a black and white film rated at Weston 24 to Mazda light your exposures would be half of those given for Type A Kodachrome in the table.*

Figure 5. "Court of Flowers." 14 seconds at F:5.6. Recommended exposure 12 seconds at F:5.6.

Figure 6. "Tower of the East." 14 seconds at F:5.6. Recommended exposure 15 seconds at F:5.6.

results which will satisfy some enthusiasts, but it cannot be said that they are perfect. If you have a cine camera which can be turned one frame at a time then the necessary exposure can be achieved.

Many dodges were tried by amateur movie makers last year to capture at least some of the colorful illumination for posterity. The best results that this writer saw from these schemes were gained by hypersensitizing. Dr. James A. Cutting, an experienced photographer, loaded his camera with Type A, used his f:1.5 lens and 8 frame a second speed. He was careful not to wind his spring motor up too strongly so that he got the advantage of the slightly slower shutter movement which results at the lowest spring tension. After returning home he placed his reel in a vessel containing mercury for a period of five days, then sent it to the processing laboratory immediately. The results of this treatment were quite satisfactory and Dr. Cutting estimates that the effective speed of the film was doubled. For hypersensitizing he puts a small quantity of the mercury in the bottom of an open dish. In this he places a wood block to support the film reel clear of the mercury. Then he inverts another larger dish over the whole so as to prevent the light from fogging the film.

Another solution to movies in color at the fair at night which will appeal to the more mechanical minded amateur is described in an article published in the May 1940 issue of this magazine. J. T. Mullin in an article called "How to Expose Kodachrome at the Fair at Night" describes an ingenious device which has been used successfully.

Don't hesitate about taking your camera to the fair. Everything is done by the management to make photographers feel at home. Tripods are welcome so there is no excuse for anything except rock steady pictures. If you are still skeptical about your ability to get the night lighting try taking your pictures at dusk just as the lights are turned on. This way you get the extra advantage of daylight which is left, but of course you have to take into consideration the effect it will have on Type A Kodachrome. This, in fact, is not really so bad and as a last resort method for catching the night illumination has much to recommend it.

So capture what you can of Treasure Island. In this troubled world it is an oasis of peace, a jewel of radiant beauty. Presently it will be gone, and we will all be the better for the colorful records we have kept to illuminate the dark days we may face in the future.

Extra Extension And Size Of Field

R. S. MacCollister

SIMPLE indeed is the use of extension tubes or extra extension with cameras of the Reflex, Recomar, View or Graphic types. The size of the field covered may be seen directly on the ground glass, as well as the plane of sharpest focus.

The case is very different with other cameras to which extension tubes may be fitted with ease, but which do not have facilities for determining the exact size of field being photographed. Several of the modern miniatures, as well as the majority of motion picture cameras are in this class. Their viewfinders are notoriously inaccurate when used for extreme close-ups, not only because of parallax, but also since most optical viewfinders invariably take in too much field when used at close distances. Yet the use of extra extension is frequently the only way to get the picture desired.

There are, of course, methods of trial and error that may be used to determine both the field covered and the extension necessary to get sharp focus in the proper plane. If one is willing to brave the dangers of a little simple arithmetic it is possible to figure out the extension needed to cover a certain area—or, inversely, the size of field covered at a certain extension—and the plane of sharpest focus with a certain amount of extra extension.

Probably the most valuable unknown to determine would be the extension necessary to just fill the negative with an object of such and such a size.

However, so that there will be no confusion of terms, it is best that some definitions be put down.

The total extension is the distance from the lens to the film, when the

lens is focused sharply on the object. For all practical purposes, and with all but telephoto lenses this distance may be measured from the plane of the iris diaphragm to the film. With the lens focused on infinitely distant objects, this distance is equal to the focal length of the lens.

The extra extension is the distance the lens must be racked out beyond the infinity mark to bring a close object into sharp focus. It is, for all lenses but telephoto, equal to the total extension minus the focal length of the lens. In the case of all lenses, telephoto or not, the extra extension is the same for a given object distance, with lenses of equal focal length. In other words, a four inch telephoto lens on a movie camera must be racked out exactly the same distance for an object six feet away as a four inch lens on a folding Kodak. Thus the determinations of extra extension may be made accurately, no matter what type lens is being used.

The one exception to the above statement—which must exist, to prove the rule—is a lens with front lens focusing, such as is placed on folding cameras. But, with these lenses, there is no possibility of extra extension, and consequently, this discussion may not be used on them in any case.

The minification is the number of times smaller the image on the film is than the object photographed. This may best be illustrated by an example. Using a Contax camera, taking a picture 1 x 1½ inches in size, an object 5 x 7½ inches is photographed, covering the entire negative area. Therefore, since an object 5 inches high is imaged 1 inch high in the film, the minification is 5.

Now to determine the extra extension needed to reproduce a certain area on the film, using the full negative area, it is only necessary to divide the focal length of the lens, as marked on the lens barrel, by the minification. The answer to this division is the extra extension beyond the infinity point which will make the camera cover the area desired.

This may be stated as a formula thus:

$$Ec = \frac{F}{Mi}$$

Where Ec is the extra extension as defined above
F is the marked focal length of the lens
Mi is the minification
Ec is expressed in the same units of measurement as the focal length of the lens. I. e., if the lens' focal length is expressed in millimeters, Ec will be in millimeters.

This calculation is simplicity itself, and may be considered under the head of mental mathematics. An example will illustrate; using the same set up as described before—Contax, object 5 x 7½ inches, film area 1 x 1½ inches—the minification was determined to be 5. Using a 50 mm. lens—say the f:2 sonnar—it is easy to see that the extra extension needed will be 10 millimeters, since 50 mm. divided by the minification 5 gives 10 mm. without recourse to paper and pencil, slip-sticks, calculating machines or other aids to higher math. The next thing to do is to get an extension tube system made up that will add 10 mm. to the lens to film distance, and the camera will be set to photograph an area 5 x 7½ inches and have it cover the full negative area.

This calculation may be worked in reverse, of course, and will give the

"The Citadel" *Dr. W. Schlipp, Egypt*

1939 Kodak Exhibit

area photographed with a certain extension. In the same example, with the extra extension known, dividing 10 mm. into 50 mm., the lens focal length, will give 5, the minification. Since we know the film area, this minification should be thought of as magnification, and the object or field will be five times the size of the negative. Therefore, the field will be 5 x 7½ inches.

In making these calculations, it is very necessary to remember to get all dimensions into the same unit, inches, centimeters, millimeters or what you will. To convert millimeters to inches, divide by 25.4. To convert millimeters to centimeters, divide by 10. To convert inches to millimeters, multiply by 25.4, and to convert centimeters to mm., multiply by ten.

It should also be remembered that it is seldom possible to use the full actual marked negative area. That is, 9 x 12 cm. film actually has a useful area, in most cameras, of about 8 x 11 cm. These actual size figures should, of course, be used instead of the marked dimensions. By the same token, the Contax size is actually 24 x 36 mm., not 1 x 1½ inches.

It is always wise to fudge a little toward a shorter extension than calculated. This will include a slightly larger area, and insure against clipping off small—but important—areas of the object.

Having found the extension needed for a certain object size, the problem remains of determining the distance from the lens to the plane of sharpest focus.

This is done by determining the total extension (extra extension plus focal length) and multiplying that figure by the minification. In our example, the total extension would be 60 mm. (50 mm. focal length plus 10 mm. extra extension). This multiplied by the minification—5—gives 300 mm. This is the distance from the plane of the iris diaphragm of the lens to the plane of sharpest focus.

Unfortunately, in this calculation there is one factor not taken into account—the internodular space. This is the space which the light coming into a lens seems to jump without reason. The incoming light seems all to converge toward one point. The light coming out of the back of the lens and falling on the film seems all to come from another point. The distance between these points is the space jumped by the light. It varies with the lens formula, and there is no method except the use of an optical bench to determine its extent. It is, however, almost always small. Therefore, the last calculation may be considered to be about 90% accurate.

Since it is always desirable to stop the lens down when using extension tubes—to get both depth of sharp field and sharp definition—this inaccuracy is not very important. In almost all cases the depth of field gained by stopping down will take care of it.

If one wanted to get a little closer to the accurate point of sharp focus, it might be well to add a very small distance to the calculated distance, since usually the point from which the object-lens distance is measured is a little farther out than the point from which the lens-image distance is measured. One or two trial shots with the lens wide open on an object whose distances—lens to various parts of the object—are known will soon indicate in what direction and how much to modify the calculated lens to object distance.

"Aspiration" *Frank Marshall Moore, F.R.P.S.*

Points From A Retouching Pencil

Hillary G. Bailey, F. R. P. S.

EVEN photographers are likely to suggest that the pencil point in the center of Figure 1 is unnecessarily long. A few crusading purists may suggest that to conceive, much less to execute, such a fragile thing is silly. Yet such points are found regularly around photographer's retouching desks to the dismay of the uninitiated and the abject fear of the retoucher, lest the inquisitive should wantonly break them. For the sake of social felicity it is well to remember that to break a retoucher's pencil points, in order to satisfy an experimental curiosity, is cause for justifiable homicide in his opinion, the law to the contrary.

"Tell me," requests the inquisitive, "why is not the point on the left or the one on the right in Figure 1 just as efficient as the one in the center. After all is not a pencil point a pencil point, and is not its purpose simply to deposit graphite in certain places in order to increase negative density at those places? So, why all the exposed lead and the subsequently exciting worry over breaking it?"

It does sound like good logic, doesn't it? The kind which should dispose of the subject, but a few attempts at using bluntly sharpened pencils will soon convince the inexperienced that it is quite imperative to expose

Figure 1

Figure 2

a large amount of lead. In the first place, it is necessary to whittle the wood away because peculiarly we can not see in curves (when sober, at least) and the wood protection for the lead insists on being in the direct line of vision if the pencil be held sufficiently perpendicular to the negative surface to prevent easy pencil point breakings. If a retouching pencil be held obliquely to a negative surface, you can readily see that there is a surprising amount of leverage applied to a very delicate point; so much so that the least extra pressure results in that dreaded snap of lead which is a major catastrophe in the life of every retoucher.

Furthermore, the bluntly sharpened points wear away their sharpness too rapidly. So rapidly that the graphite deposits soon become grainy. The lead lumps are too easily seen. In such instances it then becomes a problem to decide which is the more annoying, the original blemish or the resulting one caused by conspicuous retouching marks.

Immediately, you ask, how is the best way to secure such a pencil point and retain a certain amount of dignity? Can it be done, at all? Well, the points can be achieved in due course of time, but the dignity can not be guaranteed. It takes patience to grind down a satisfactory point suitable for speedy retouching. Patience is a virtue, and the haste which tempts the unprintable language preserved at present to describe the European totalitarian criminals and their American imitators, persistently insists upon destroying that virtue.

Most professional retouchers have pet methods for sharpening their

Figure 3

Figure 4

pencils, often with a slight amount of contempt for any method except their own. In that, they prove themselves definitely human. Naturally, a long thin-bladed pen knife is efficient in whittling away the wood and baring the lead. A thick blade tends to break the lead. Quite often the remaining processing is achieved by a reciprocal swing motion of the lead across a sheet of the finest sandpaper as illustrated in Figure 3. Without question this method wears down the lead rapidly. Too rapidly, in fact, for a very fine point unless extreme care and a measure of good luck dominates the procedure.

Several very clever retouchers face the inside of an envelope with sandpaper and then insert a pencil point, and rotate it with a movement of the fingers as pictured in Figure 2. It will be noted that pressure is needed on both sides of the point during the rotating motion. This may be effected by the thumb and forefinger of the left hand. The degree of the pressure may be determined by a little practice. The use of an envelope is a commendable procedure particularly since the released graphite remains in the envelope and does not soil the fingers as readily as the method illustrated in Figure 3.

A few retouchers finish off their most delicate points with an inexpensive grinding wheel which may be purchased at any dime store for two dimes and a jitney. Its use is shown in Figure 4. The point to bear in mind being that the heel of the pencil should rest on a solid surface to expedite and facilitate the accuracy of the process. Personally, I would not be without a grinding wheel.

Usually retouching is an annoying process. Its purpose is not to cover up the photographer's mistakes as a few have felt called upon to state. Despite the dread of doing it as experienced by most photographers, it is another tool in his bag of tricks to be used at his discretion in order to achieve a desired result. A long pencil point is particularly satisfying in accomplishing that result.

Cinema Section

Edited by

William A. Palmer

Camera Angles

RECENTLY a judge of an amateur motion picture contest, after having viewed a full number of films was heard to exclaim, "a crooked camera to me is still a crooked camera!" The remark was prompted by several films n the group that attempted to be somewhat "arty" and had included a number f scenes taken with a camera at a cockeyed angle. The producers of the films no oubt felt that they were departing from the commonplace by taking a diagonal lant at what were merely nothing more than ordinary material. Some place they ıay have seen an experimental film in which such a camera angle was employed nd concluded that it was the thing to do. The whole subject of camera angles s not one which needs to be complicated. Abnormal angles should only be used or a definite purpose and odd camera positions thrown in for no other reason ıan that the photographer thought he should do something different, usually o not make a good impression.

There are two main reasons for varying the camera angle. The first purpose s to alter or control the composition of the scene and the second is to heighten he dramatic effect or to create the proper mood. In the latter case, the applica- ıon is almost always in connection with the photoplay form of picture produc- ion in which persons enact the sequence of events. Here is not meant a estriction to theatrical films made in Hollywood but the photoplay form can ıclude the few dramatic episodes found in many industrial and documentary lms as well as amateur productions. In all cases, though, the film material is presentation of an episode involving a person or persons who are followed by ıe spectators through a certain sequence of events. When shooting such a film ıe cameraman does have to think of camera angles so as to be able to present ıe action to the audience in the most effective manner.

The vast majority of scenes taken for professional dramatic films have ormal camera positions, that is to say, a viewpoint from approximately ve level, so as to represent the scene as it would appear were the spectator there ı person. The more unusual angles, either from a high or a low viewpoint, are sed for more specialized dramatic effects. The high viewpoint gives the spec- ıtor the impression of domination over the scene and is used when one wishes) create the impression that the audience has the commanding view of the ction or that the character shown is placed in a subordinate position. For xample, in the dramatic film of the story of Oliver Twist, as the young man omes up to ask for more porridge, the scene of Oliver would be photographed

from a high camera position, not only because he is a child of low stature but because the high camera angle makes him seem all the more pathetic.

A low camera angle is used for dramatic effect when it is desired to give the impression of a menace. Here the subject of the scene gives the impression of dominance over the spectator and gives rise to apprehension or terror to whatever is supposed to be portrayed. For example, in a gangster picture, the tough mug would almost always be photographed from a low angle to make him appear more terrifying.

More common than the above specialized use of camera angles for dramatic effects, are variations of camera angles for scenic compositions. In photography unlike painting or drawing, the worker can not move his subjects around at will but by choosing the proper camera angles can vary their relative positions with respect to the camera and achieve the desired result. You take a simplified case of a foreground object and a background object both of approximately the same physical dimensions, and by choice of camera position and angle, the relation between those two objects may be made to vary almost to an unlimited degree. The closer object can be made to appear either to the left or to the right of the background object. It may appear to be low or above the background object or by moving the camera very close with a wide angle lens, or far away with a long focus lens, it may appear to be much larger or the same size as the background object. In photographing scenic shots, variations of camera angles to achieve proper composition is extremely important where the shifting of the camera viewpoint right or left, up or down, can place the foreground objects such as trees and overhanging limbs so as to frame distant scenes and give an illusion of depth as well as balance.

All these different reasons for changing camera angles require the camera to be kept on an even keel as far as vertical axis of the format is concerned. The camera may be placed high or low. The viewpoint may be tilted upward or downward, but it is almost never turned sidewise at an angle so as to distort vertical lines. There are, however, occasional opportunities to use a crooked camera technique in a dramatic film when one wishes to create the impression of confusion, dizziness, or other abnormal mental states, but the use of a crooked camera to portray a commonplace scene will alwas look like a crooked camera.

Camera Motion

Closely allied with camera angles in the matter of cinematic technique is the subject of camera motion. We have discussed the matter of tilting and panning the camera at tiresome length, the summation of such talk being that "it shouldn't be done!" The "hold the camera steady" propaganda is laid on so thick at times that one may get the impression that the camera can never be moved without raising eyebrows. Most of the criticism of tilting and panning has been in connection with the more common scenic and backyard home movies as contrasted to this present discussion of camera technique more directly applied to a photoplay type of film of dramatic action. There is a certain amount of legitimate use of tilting and pan motions but these are almost entirely for the purpose of following a person or action rather than a camera movement to cover additional parts of a scene beyond the field of the camera lens.

Much more satisfactory than tilting or pan motions of the camera from a fixed camera position, are moving camera shots made by the aid of a camera mount on wheels. This type of mobile camera has become a very necessary part

of theatrical movie production because of several superiorities over the straight panorama.

The most important advantage of a rolling camera is in following the motion of a character as he walks across a set for some considerable distance. If the character is followed by means of a pan there is a disturbing amount of relative motion between the subject and the background. However, in a rolling or dolly shot the camera may follow the person walking and have the background either come toward or recede from the camera, showing much less relative motion and therefore less distraction. Another great advantage of a dolly shot is the opportunity to create pseudo-stereoscopic effects by very slow and even lateral movement such that the foreground objects are made to move toward one side of the frame while the background objects move relatively toward the other side, in other words, the camera is caused to move through an arc to create the impression of a slight rotation of the scene. This effect, incidentally, yields the closest approach to a practical method of stereoscopic photography which needs no fancy viewing attachment. It must be emphasized here that all dolly effects should be done in a very conservative manner, with the motion being very slow and even.

The amateur can do them with success through the aid of improvised camera dollies, or if he wishes to be really fancy he can purchase a small one such as that made by Eastman Kodak for the Cine Special, or with very little effort can make one with large size rubber tired casters much as are used on the newest type of industrial hand trucks. The essentials of a camera dolly are three wheels attached to a platform or triangle to which the ordinary camera tripod can be fastened. One of the three wheels should be on a swivel so that the device may be turned in any direction.

It is not at all necessary, though, to have a special camera dolly, inasmuch as children's wagons, automobiles, tea wagons, and even roller skates can be pressed into service to hold a camera while it is carefully moved. It is most essential for satisfactory dolly shots, that the floor over which the dolly moves be smooth. Many floors of wood and concrete have small irregularities which cause disturbing camera jiggles. It is a good idea to make use of a large sheet of Masonite tempered board laid on the floor. This material has a very smooth and slick surface and may be obtained at almost any lumber yard for a very reasonable cost. When using an automobile as a dolly an improvement can often be made in smoothness by deflating the tires to about half the normal pressure. This will aid materially in absorbing small road bumps. In all cases the camera should be on a tripod and that tripod lashed firmly to the rolling support.

Whiskers Are A Headache

SOONER or later if you don't watch out for them, whiskers are going to cause you a headache. They are very annoying to users of 16 millimeter equipment and exasperating to the 8 millimeter user. They can ruin film easier by their presence than can most any other inconspicuous camera fault.

Perhaps I will make myself a little clearer if I explain that whiskers are

those little pieces of lint or dust that lodge in the aperture plate of cameras and projectors, there to remain unnoticed until they have done their beastly damage. Whiskers have a particular fondness for sticking at the bottom of the camera aperture (the top of the picture area, since the picture is inverted) where on the finished screened picture they can dangle down and look something like hanging moss. Whiskers are most serious on 8 millimeter film because the entire picture area is so small that one good hunk of dust can cover up most of the format. When this happens, one is apt to feel especially bad over the spoiled film for, except for the dust images, the scene may be perfect and when projecting it you have the feeling that it should be easy to push the dust away and see what is behind it. But, of course, nothing can be done to remove the dust image without removing the picture too.

Whiskers occur most often in the projector but here they are not serious. While they may mar the projection of a single reel, they may be easily removed before subsequent projections.

Whiskers cause untold trouble in film laboratories, particularly in the printing operations where a speck of dust or lint lodged in the aperture of a printer will ruin the whole roll of film. As a matter of fact, it is the danger of dust lodging on the film and aperture plate of printers which makes the negative-positive system so difficult for 16 millimeter films and practically impossible for 8 millimeter. With the negative-positive system the whiskers appear white on the screen and are much more annoying than those on ordinary reversal film which appear black.

Apparently it is possible to build up a tolerance for a moss bordered picture since it is not uncommon to be shown a great series of home movies in which both the camera aperture and projector have become well padded with lint. Perhaps some people might even feel that the informal deckled edge effect may have a certain charm. However, for those of us who prefer clean, sharp borders, there are two implements which should be a part of our movie kit and if used will keep whisker trouble down to a minimum.

The first is a small camels hair brush such as those used for water colors. The second is a small rubber syringe like those commonly used by ear doctors. The camels hair brush is particularly useful in cleaning our camera apertures and so one should be kept in the camera case at all times and used each time a new roll is threaded into the camera. The syringe will also work well to blow the dirt out of the aperture if it has not become too firmly lodged, but since the syringe is a little larger than the brush it is not so easy to carry around in the camera case. However, it is the best little camera tool to use during projection in as much as nine times out of ten it is possible to blow out a speck of dirt while the projector is running rather than have to wait until the reel is over.

In both camera and projector the whisker problem is exaggerated if the film guides and aperture plates are allowed to become soaked with oil. So, in addition to dusting out the aperture plates, it is necessary to wipe their surfaces free from oil and also remove any accumulation of emulsion. The handiest tool to remove emulsion from the film gate is made from the wooden handle of the aperture brush, simply by whittling it to a chisel-like point. This wooden end will remove emulsion easily while in no way damaging the surface of the film guides and is very much safer than any form of metal tool, however soft.

A Teaching Experiment

Rex Hardy, Jr.

REALIZING a long-standing idea of the author, Stanford University is offering, during the 1940 Spring quarter, a course designed to familiarize tudents of journalism with the judgment and treatment of news pictures. It as been my feeling that a lag exists between the rise of photo-journalism and he ability of the so-called picture editors, and it is hoped that future editors ill be equipped by this training to handle more effieiently the problems of roviding pictures for modern publications.

Titled, "Pictorial Journalism," the present course is in no sense a course n photography, *per se*. Through the interest and cooperation of Dr. Chilton ush, executive head of Stanford's division of journalism, I have been given a ree hand to develop a satisfactory form of training, and I feel that eventually ur Pictorial Journalism course will expand into an invaluable training eourse or all embryo editors.

With the rise in importance of photography to the modern periodical, it s almost a foregone conclusion that all journalists have to deal, more or less, ith pictures, and it is on this premise that our training is based. Until recently, ditors have felt that reporting forms, other than words in eold type, were con- essions to less literate readers. The new way of looking at the subject recognizes ictures, not as mere ornaments—illustration—but as the clearest, most graphie, orm of reporting available. No one denies that the old cliehe, about one picture eing worth more, etc., etc., is quite true, and the saving of words and space, not o mention readers' time, has beeome neeessary to the high tempo of our civiliza- ion. Competition from newsreels, radio, picture magazines, tabloids, has put o editors the task of clarifying the news of the day.

Up-to-date newspapers have equipped themselves to handle pieture report- ng adequately and rapidly, and we hope to have a hand in this equipping hrough our training of students to deal with the mass of pictures available.

The course, itself, has been divided into two parts. Lectures and discussions ll half the allotted time; the remainder is devoted to laboratory demonstrations. eginning with the history of photography, we have passed to a brief summary f the physiçal and chemical theories involved in the making of photographs. aboratory periods are spent in the study of the meehanics of the camera, the evelopment of negatives, printing, lighting as it is eoneerned with news pho- ography, and kindred aspects. I am attempting to touch upon all these fields nly suffieiently to insure that the students obtain a brief understanding of them. am coneerned not the slightest with their learning to photograph, develop, rint, themselves. I feel, rightly, I think, that judgment of pictures will be uch more just, if an understanding of the proeesses by whieh they have been roduced, may be drawn upon. Thus, the mathematical formulae of lens con- ruction would be superfluous in a course of this kind, but the students come o understand the construetion of the eamera, the use of the lens, the shutter, the ocussing mechanism, of the camera.

By the same reasoning, the student is not necessarily able, after this training, o go into-a darkroom and develop negatives, and then to print them. He will,

however, know what happens to the negatives during development, and how a print is produced.

So much for the laboratory part of the course. The lectures and discussions are concerned with judgment of the pictures themselves, and with the channels through which a periodical receives its pictures, with some emphasis on the reproduction processes in use.

The class learns that a publication receives pictures through the efforts of its own staff, from free-lance photographers, from the various news-services and picture agencies, from press representatives, and from individuals in the news. The organization of a picture department is described, with its personnel and its equipment.

The factors involved in judgment of pictures are thoroughly discussed, and the students are required to bring to class examples clipped from newspapers, these being augmented by examples of good and bad pictures, furnished by the instructor. It is suggested that pictures for publication are judged on two main counts: as copy, and for content.

Each of these main counts is divided into sub-factors. To illustrate, copy means the combination of sharp focus, good detail, and proper contrast. We try to show examples of each of these things, illustrating with actual prints. Content is the sum total of personality, news, and action. Thus, the two main points of judgment are the interest shown in the picture, and the reproductive value of the picture. The half-tone process used by most newspapers suggests certain requirements in the print. We must learn what these requirements are, and how they are obtained. Likewise, we must see, technique being satisfactory, what makes the picture worth printing. It should augment, help to clarify the story—not merely illustrate it.

In working out this line, I have found the new book, "Pictorial Journalism," by Vitray, Mills, and Ellard, published by the McGraw-Hill Book Company, New York City, to be of the utmost value, and it is used as the text for our course. In it may be found, put forth clearly, the principles underlying the study, and used in connection with adequate laboratory work, it provides an excellent foundation.

It is interesting to note that the announcement of the course brought forth applications from more students than could be properly handled, including a number from departments other than journalism. It was found necessary to exclude a number of interested students for the sake of efficiency, particularly in the laboratory work. This type of course, when thoroughly worked out, would appear to be the groundwork for more specialized training in the field of pictures.

Treat 'Em Easy

Thomas Welles

HERE'S a lot that might be said, I suppose, in derision of the average news cameraman's ability as an artist portrait photographer. His results are often harsh, with chalky highlights and Stygean shadows. Too frequently his backgrounds, unless they are painted out by the staff artist, strike a discordant note, and his lighting effects are seldom all that could be desired from an artistic standpoint.

But there is one thing of which he is seldom guilty—

He is almost never accused of turning in a picture that lacks naturalness—life—vitality. If he falls down in other respects, here, at least, he gets results.

Well, what's the answer? What does he do that most casual amateurs, and—yes, I'll say it—many professional portrait photographers—either cannot or will not do?

First of all, he photographs people as they are, and not according to any preconceived ideal, either on his part or that of his subjects. To do this, he endeavors, insofar as it is possible, to "take them by surprise."

I don't mean that he hides behind trees, waiting to pounce out at them, like a bogey-man, or even that he stalks them like wild game. I mean simply that he goes through the routine of setting up his camera, focusing, and so on, as rapidly and efficiently as possible, and then "snaps" them before they have time to tense under the stare of the cold glass eye that confronts them.

And he never, *never*, NEVER touches his subject with his hands.

The other day I happened to be in the headquarters of a large photo supply distributor, when some poor soul, whom I took to be a prominent buyer, came in to be photographed by the company's staff portrait photographer.

Well, boys and girls, believe it or not, that photographer sat his victim down in a straight-backed, cushionless chair, facing a stand camera of terrifying proportions, before he had even connected his lamps to the electric outlets!

But that wasn't all.

After he finally did get them connected, so help me, he fiddled around for *fifteen minutes* (I timed him), trying them first this way, then that way; first higher, then lower; first brilliant, then diffused, until the poor devil in the chair looked like he was waiting for the dentist to pull a wisdom tooth.

But the crowning horror was yet to come.

During the foregoing torture, the victim, to save his eyes from the fierce onslaught of those 1000-watt Mazdas, had lowered his head. When the fatal moment had arrived, the film holder had at last been inserted in the mammoth camera and the slide drawn, that photographer walked calmly over to his now thoroughly-cowed "subject," paced the palm of his hand under the latter's chin, and literally shoved his head up to the point where he thought it should be!

Well! I heaved a sigh, and was thankful. I was learning art.

And, along with it, I was learning the reason for those stoney expressions—those horrible, frozen stares—that so often I had seen in "professional" portrait photographs.

Good newspaper photographers are not stupid, nor are they really unskillful, even when it comes to portrait lighting. If the lighting often isn't right, that is because they hold it second in importance to naturalness of expression.

If they use artificial lighting other than the flashlight (which, by the way, has its points, and is the most frequently used artificial light in newspaper photography), they place and connect their lights *before* they seat their subject, and keep subsequent shifting to the irreducible minimum. If the lights are powerful enough to cause discomfort, they are not turned on until *after* the camera is focused, the holder inserted and the slide drawn.

After the lights are turned on the news cameraman makes his exposure as quickly as possible, for it doesn't take long for even the most blase subject to "freeze" under that fearful glare.

In the matter of posing, he strictly avoids dogmatic instructions to the subject. These invariably bring an anger reaction, and, even though the subject himself be unaware of conscious anger, the expression will subtly change.

Unless they seem absolutely necessary, the news photographer will even avoid pointed suggestions, since these tend to bring to the fore the very thing he is trying to make his subject forget—that he is being photographed.

Naturalness of expression can be achieved only if the subject is physically and mentally at ease. He can be neither, if he is compelled to stare long at brilliant lights, or even at the camera itself.

Likewise, he cannot be at ease, unless he feels at least a passive liking for the photographer.

Indeed, it is in this respect that the news photographer is put to the severest test. Usually he has never seen his subject before. Often, because he is illustrating news events, he is required to take pictures of persons laboring under mental strain over which he can exert no control.

He must minimize the effect of such strain by an easy-going cordiality, tempered by an understanding of the peculiar make-up of the person he is trying to photograph. And, children, that takes tact—spelled like this: T-A-C-T.

Amateurs seldom have that to contend with. For the most part they photograph persons they know—persons in whom they recognize instantly those intimate, vital expressions that photography alone, of all the arts, can paint.

But even one's closest friend will "freeze" before a camera, unless one handles him with kid gloves. And, kiddies, I mean KID gloves!

Give your subject a break! Make him as comfortable as possible, and then, above all, work fast. The result will be vitality and sparkle in your photographs.

You Name It

Lorine W. Garrett

IT was quite a simple matter to name our baby. We didn't have the name handed down to us at that. And, if I can remember back fifteen years, it was my husband who named her. But I'll admit that trying to find titles for my husband's pictures is something else again.

You know. My husband is a photographer. The kind that sends prints to Brussels, London, South Africa, Delaware and all points west. The kind of man who suddenly disrupts the routine of a Monday morning with a "Hey, Mom. Can you think up a name for this picture? I have to get it off to Timbuctoo tomorrow." Honestly . . . !

"What picture is it?" I howl, above the roar of the washing machine. "The road one," my husband shouts back. So definite, The road! Well, let me think. "Open Road," no that won't do; "Road to Rome," still no good; "It's a Long, Long Trail a'Winding." Darn! Just at this point I toss the colored socks in with the white shirts, so I decide to give up washing temporarily and concentrate on photography. After hours of thought, the picture is named satisfactorily by the photographer himself, and put in its little mailer for the judges' approval.

But I feel guilty about some of the pictures I have named. So many of them have had tactful titles instead of honest ones. For instance, one of my husband's snows has the alluring name of "Enchanted." It should be, "O, Cursed

Snow!" And then there is the one of the lovely little girl (the lovely little girl who really needed a warming more than a picture) called "Little Sister." Honesty would force me to re-name it "Little Blister." And then there is the picture of the kitten peeping timidly around the corner at a dog. Instead of "Inquisitive," this should definitely be, "Scram, Cat!" But even in photography one has to simulate honesty.

If I could get my husband to take the purist's point of view, and call his pictures exactly what each represents, as, an elephant, "Elephant"; the body, "Torso," etc., things would be simpler. But where would be the fun in anything so easy?

Occasionally my husband goes off the deep end and thinks up a biblical quotation for a print. I gather from the rather stunned silence on the part of our friends, who look at these pictures, that he is the only one who knows what it's all about. Even my early training in bible scripture at a Methodist school doesn't help me now in interpreting these erudite titles. I always feel somewhat abashed, along with the rest of the spectators. But my abashment doesn't equal my annoyance over these quotations—always very lengthy and difficult to print. Yes, the job of printing titles is mine, too. It came about a few years ago, with a "Look, Mom, you can print. Jane will lend you her book on printing and you can do it." Well, I *can't* do it, but I do do it.

The photographic journals are full of pictures with cryptic titles. I remember one in particular, of seagulls on the wing, with the caption, "Sincerity." This puzzled and intrigued me for hours. "Sincerity!" How on earth could they know whether those birds were sincere or not? And there seemed to be nothing else in the picture deserving of this name. Right then, my husband and I agreed to call one of his landscapes, "George." Just "George." It had been worrying us both for weeks. Why not end our troubles and baffle the public a bit? But the public was spared this delightful little joke upon my learning that the title "Sincerity" was printed in error, and should really have been "Serenity."

But there have been other pictures with names just as disarming, and due to no fault of the printer. Could it be that there are other wives who have to think up titles for their husband's prints? Wives with one little brain cell continually planning menus to fit the family budget; one more little cell working overtime trying to keep up on world affairs; another spinning dizzily over the problem of being a member of the local P.T.A. and a Modern Parent, or whether it wouldn't be a lot easier to just be one's self and whack the kid: with none of these cells functioning easily. Perhaps this explains the weird assortment of titles under a group of salon prints.

Well, I've been lying awake nights, trying to solve this domestic problem, minor though it is. I have read that the successful hostess is the one who gives her guests new stunts to perform, and I have decided to spring my new game, called, "You Name It," at my next party. Sort of on the order of "Quotations," used by all the best Hollywood hostesses. But instead of thinking up the endings of various proverbs, my guests will be given a number of my husband's most difficult prints, and asked to suggest titles for them. The little duplicate ash tray, received last Christmas, can go to the winner.

Maybe this won't meet with anyone's approval, but I bet it will ease the pressure on my brain.

"Crossing the Stream" *John R. Hogan, Philadelphia, Pa.*

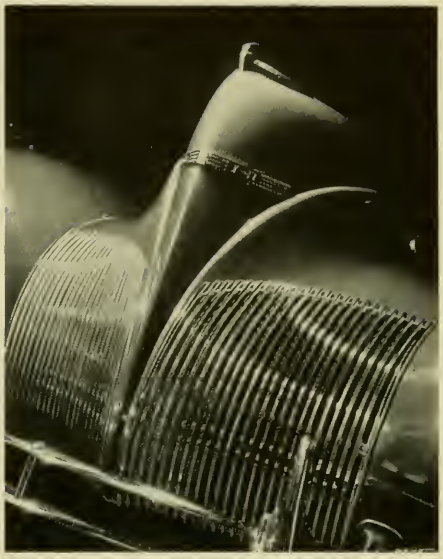
First Award—Advanced Class

■ Here is a picture which conveys many of the thrills which bind the yachtsman to his hobby We can feel the lift and fall of the hull, the strain in the rigging, the thump and thrust of th powerful wave, and the force of the wind in the driving spray. It is precisely because we ca feel these things in the picture, and because our attention is concentrated so strongly on th *action* of ship and sea, that this is a thoroughly successful photograph. Observe how all line lead to the point of impact between ship and wave; how nicely the exposure time has bee calculated to leave just the right amount of movement in the wave. A faster exposure woul freeze it and rob it of movement. A slower one would result in such a blur that reality woul be lost. This is as the eye sees it. Full depth of field would be desirable, of course, but ver difficult to obtain under the circumstances.

Data: 6 x 6 cm. Rolleiflex with Zeiss Tessar F:2.8; 1/50 sec. at F:8 on Agfa Super Pan i Champlin 15; 11:00 A.M. in February; no filter; 11 x 14″ print on Defender Velour Black D in D-72. Considerable dodging in of dark areas.

Second Award

Advanced Class



"V-12"
William A. Garnett,
Pasadena, Calif.

■ Mr. Garnett has done an excellent job of feeling out the significant form in this material, and his lighting has been carefully adjusted so that the arrangement completes itself within the picture space. Notice how the light falls off toward the right. If this were not the case, of course, the eye would be almost jerked out of the picture. Pictorially speaking the interest value of the picture lies almost entirely in the pleasing relationship of forms. To all intents and purposes, it is an abstraction. The fact that we can recognize the subject matter is of little moment. One of the pleasing aspects of this arrangement is the simplicity of the forms. It is, therefore, somewhat unfortunate that the bumper at the base of the print becomes a bit more complicated than is desirable. We like the picture better with the bumper removed entirely by trimming. Of course none of this makes much sense if the picture is looked upon as an advertising illustration, since most advertising agencies would consider the bumper much more important to the picture than the claims of abstract art.

Data: 16 x 20″ bromide print.

Third Award

Advanced Class

"Old Courtyard in Tallinn"
H. de Wetter,
Brooklyn, N. Y.

■ The principal problem here is to adjust the camera angle so that the archway embraces a well unified aspect of the buildings beyond. Mr. de Wetter has achieved a very satisfactory relationship between these two main elements. It is quite evident, for example, that a lower or nearer camera position, by including material above the roof lines, would prove very detrimental. In such case the eye would be tempted to move upward and the present concentration of interest in the alley itself would be lost. It thus becomes plain that the factor which decides the camera position for any given combination of focal length and negative size in such a situation, is the amount of material that needs to be seen through the archway. It is usually best to include a considerable extent of the arch, as is the case here, so that the observer gets the feeling of looking through it. If only the outline of the further opening is shown, the appearance of depth is reduced.

Data: 2¼ x 2¼″ Super Ikonta B; 1/10 sec. at F:5.6 on Agfa Isopan in Borax Developer; late afternoon in June; paper negative on Tuma-Gas made from transparency on 8 x 10″ Defender Commercial film; 11 x 14″ final print on Defender Veltura Q.

Fourth Award

Advanced Class

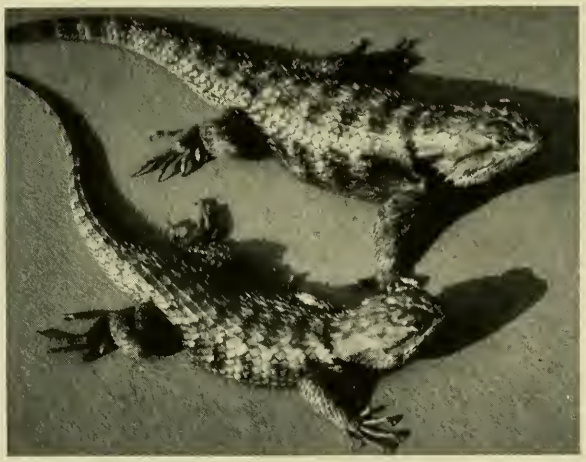
"Stopover"
Glen Fishback,
Sacramento, Calif.

■ Mr. Fishback has fully appreciated the beauty and interest value in the sleek stream-lined form of the plane. His camera angle is well selected to emphasize that quality. The shadows repeat the form of the plane and complete an interesting pattern of light and dark. Much of the success of the pattern is due to the sun being almost directly overhead, for this condition causes the shadows to repeat the form of the plane with very little distortion, and keeps them tied in closely with the plane so that we get a well-knit arrangement. Notice the importance of keeping the exposure at a minimum and giving full development to the negative to assure good deep blacks in the shadows combined with excellent highlight detail. Without such treatment the picture would lose much of its "punch" and third dimensional quality. The figure at the left is unfortunate for it pulls the eye in the wrong direction. Things would be better if it were facing inward, but we would prefer to have both figures and the piece of apparatus accompanying them eliminated altogether, since they are not necessary to the success of the picture.

Data: 11 x 14" glossy print.

Fifth Award

Advanced Class



"Scaly Lizards"
Harry H. Haworth,
Pasadena, Calif.

■ It is always a difficult problem to arrange two almost identical objects in a picture so that they do not appear to compete with each other. Mr. Haworth's solution has been to arrange the two lizards in very similar positions, thus tending to merge their identities into one through repetition. We can hardly consider it a complete solution and think that things would be better if one of the lizards definitely dominated the picture. In presenting such material, the photographer must reconcile two conflicting influences. Because the main objective of the picture is to give an intimate and revealing look at subject matter seldom seen so favorably, there is great temptation to trim in as close as possible. On the other hand, there is a psychological disadvantage in showing a thing known to move rapidly, too closely confined within the picture space. We feel that the present arrangement strikes a fairly good balance between the two factors mentioned. If it errs at all, it errs in the direction of too close trimming, but we cannot be sure of that without knowing what happens to the rest of the tails, for example, or actually seeing a different version.

Data: 10½ x 13½" bromide print.

"Flight" *Richard Rundle, San Francisco, Calif.*

First Award—Amateur Class

■ This is the second first award which Mr. Rundle has received in the Amateur Class, and he is therefore automatically promoted to the Advanced Class.

Here is very simple subject matter made extremely effective by the care which the photographer has taken to get everything just right. The little hammock presents a pleasantly curved form as a supporting base, and its apex places the figure in a strong position in the picture space. The action in the figure is beautifully caught. There are no awkward or unnecessarily complicated passages in the figure as is so often the case with action shots. The pose is lithe, gracefully athletic, and therefore pleasing. The plane also is caught in an ideal position in the picture space. Notice how the fact that it reaches above the clouds adds apparent height and freedom to its flight. Observe how the movement in the clouds partially opposes the movement set up by boy and plane, thus offering a happy counter-point to the principal movement.

Data: 6 x 6 cm. Rolleiflex with F:3.5 Tessar; 1/500 sec. at F:5.6 on E.K. SS Pan; 11 x 14" print on Defender Velour Black I 22; developed in Agfa 125.

"A Valiant Effort"
John H. Vondell,
Amherst, Mass.

Second Award

Amateur Class

■ There is delightful comedy in the determination with which this diminutive figure is attacking the slippery, and for him perhaps, formidable slope. The figure is nicely placed and the action is well caught. The back lighting helps in two ways. It brings out fine texture in the snow and permits the shadow to echo the action of the little figure. Some may question the advisability of including the crest of the hill, feeling that it detracts attention from the figure. If we trim the crest away, however, the hill loses much of its character and the steepness of the slope is not nearly so apparent. Consequently, we believe it is wise to keep everything which is now in the picture.

Data: 3¼ x 4¼" Tele Graflex; 1/110 sec. at F:16 with yellow filter; Agfa Isopan developed in Metol Pyro; 11 x 14" print on Agfa Portrait enlarging; blue toned with gold chloride.

"Street Scholars"
Sam B. Tata,
Shanghai, China

Third Award

Amateur Class

■ There are innumerable devices for placing emphasis on the principal object in a picture, and it is well for the photographer to have as many of them as possible firmly in mind. In this case the nature of the action forces a compact grouping of the three heads. Emphasis on the central one is obtained by concentration of lighting for the most part, and that factor is helped by its central position and by the fact that it partially overlaps the head on the left. The picture is made unusually interesting, of course, by the amusingly serious expressions of the three little participants. Unfortunately the print leaves something to be desired from the technical point of view. The weakness of the light has forced a large aperture with resulting loss of depth of field which is particularly noticeable in the head on the left. Better separation between figures and background would also help.

Data: Leica IIIA with Summar F:2 lens; 1/20 sec. at F:2.2 on E.K. Panatomic film; weak winter sunlight; 7½ x 9¼" bromide print.

Fourth Award

Amateur Class

"Romany Maid"
Adelle Herring,
Dallas, Texas

■ There is a quiet dignity about this portrait that is most pleasing and Mr. Herring is also to be congratulated on nice rich tone values, and a commendable restraint in his handling of costume. The present placing would be all right if the model were looking slightly to her right, but with the eyes looking straight ahead as they are, the figure appears to be placed too far to the right in the picture space. The hands, of course, act as a balancing point in relation to the head, and their inclusion makes it possible to place the head slightly to the right of the center, but only to the extent that the hands are to the left of center. Since these two elements are only slightly displaced from one another as regards left and right, it follows that the head must occupy a fairly central position. In order to make the correction, we need to trim about three-quarters of an inch from the left of the 9½ x 13″ print and add that amount to the right.

Data: Leica camera, Summar lens; exposure by artificial light on E.K. Panatomic; 9½ x 13″ print on Defender Velour Black I 22.

Fifth Award

Amateur Class

"Pelecani Occidentales"
Roland Beers,
Dallas, Texas

■ We suspect that Mr. Beers has by some mysterious process learned to talk pelican. How else could he persuade these fascinating birds to pose so accommodatingly, each one showing a different aspect and grouped as if posed in the studio. Even the fellow in the background who appears to be something of a rebel in an otherwise well disciplined school, is not so bad as he might seem at first glance. Without him the thing would look just too darned perfect to be natural. If you start to wonder how come that lighting, just glance at the technical data and note that a flash bulb was used. The dark buildings on the horizon at either edge of the print are not desirable, of course, but in competition with such strong subject matter they can't do a great deal of damage.

Data: 4 x 5″ Speed Graphic camera; exposure by combination daylight and flash shot; 11 x 14″ glossy print.

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won prizes for their clubs in the Advanced Class: John R. Hogan, for the Photographic Society of Philadelphia; H. de Wetter, for the Brooklyn Institute of Arts and Sciences; William A. Garnett and Harry A. Haworth, for the Pasadena "Y" Camera Club; and Glen Fishback, for the Signa Phi Nothing.

The following won prizes for their clubs in the Amateur Class: Richard Rundle, for the California Camera Club; John H. Vondell, for the Amherst Camera Club; and Adelle Herring and Roland Beers, for the Dallas Pictorialists.

The following prize winner has no club affiliation: Sam B. Tata.

CONTRIBUTING CLUBS

Aluminum Camera Club (New Kensington, Pa.)
Amherst Camera Club (Mass.)
Brooklyn Institute of Arts & Science (N. Y.)
California Camera Club (San Francisco)
Camera Club of Richmond (Va.)
Crockett Photographic Society (Calif.)
Dallas Camera Club (Texas)
Dallas Pictorialists (Texas)
Fort Dearborn Camera Club (Chicago)
Fort Wayne Camera Club (Ind.)
Fotoklub Ljubljana (Jugoslavia)
Fotoklub Zagreb (Jugoslavia)
Manhattan Camera Club (N. Y.)
Miniature Camera Club of New York
Missoula Camera Club (Mont.)
Modesto Camera Club (Calif.)
Olean Miniature Camera Club (N. Y.)
Pack Rats (Pasadena, Calif.)
Pasadena "Y" Camera Club (Calif.)
Photographic Society of Philadelphia (Pa.)
Photographic Society of San Francisco
Rothschild Camera Clinic (Los Angeles)
Salt Lake Camera Club (Utah)
Sierra Camera Club (Sacramento, Calif.)
Signa Phi Nothing (Sacramento, Calif.)
Tropic Camera Club (Manila, P. I.)
Wilson Dam Camera Club (Ala.)

STANDING OF CLUBS

Large Clubs Advanced Class

California Camera Club	5
Photographic Society of Philadelphia	5
Brooklyn Institute of Arts & Sciences	3
Manhattan Camera Club	3
Fotoklub Ljubljana	2

Small Clubs Advanced Class

Pasadena "Y" Camera Club	40
The Pack Rats	16
Signa Phi Nothing	9
E.P.I.C. Pool	5
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2
Aremac Camera Club	1

Large Clubs Amateur Class

California Camera Club	17
Miniature Camera Club of New York	17
Amherst Camera Club	9
Detroit Camera Club	9
Photographic Society of San Francisco	6
Oakland Camera Club	4
Camera Club of Richmond	2
Green Briar Camera Club	1

Small Clubs Amateur Class

Dallas Pictorialists	8
Modesto Camera Club	5
San Marino Camera Club	5
Camera Club of San Pedro	5

SUMMARY OF COMPETITION RULES

1. Open to all, amateur or professional, club member or non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue.

Correspondence*

Western Amateur Camera Conclave

Dear Sirs:

This letter is sent you relative to the Western Amateur Camera Conclave which will be held in Oakland, California, July 25, 26, and 27, under the sponsorship of the Associated Camera Clubs of Alameda County.

First we would like to tell you of one question which has been asked us by many interested camera fans. Because it has been repeated so many times we realize that it probably has been raised in the minds of many who received the first notice of the Camera Conclave. The question has to do with how we can offer so much for so little cost. The opinion has been openly voiced in some instances and hinted at in others, that there must be a catch to it somewhere—some commercial tie-in which will subject Conclave visitors to a barrage of high pressure selling. It is a legitimate question and we can meet it without flinching.

The Western Amateur Camera Conclave is exactly what its name implies. It was conceived by a group of Oakland amateur photographers who had noticed that a number of the nation's ranking photographic experts were located within a short radius of this city, and that many others came to this area during the summer months, either on business or vacation. Ergo, we wrote the leading photographic experts, found out which ones would be here during the latter part of July, and that is how the Conclave was born. The response was so great that our program problem became one of selection rather than acquisition.

In the same way, too, the fact that the 1940 World's Fair on Treasure Island presents many photographic possibilities was considered, and we have had nothing but the utmost cooperation from the Exposition management, with the result that we will be able to offer those who attend the Conclave, picture possibilities which they never could have obtained as individuals.

This willingness to cooperate, this interest in the amateur photographer which has been displayed by everyone, is the reason why we can set our Conclave registration fee at only $1.00, which gives admission to all lectures and demonstrations, transportation on the field trip, entrance into all contests and the special World's Fair Camera Day credentials which provide special picture taking privileges on Treasure Island.

The headquarters for the Conclave are at the Hotel Leamington in Oakland and all events except the field trip and Treasure Island day take place there. Here is the program in brief:

Thursday, July 25, 1940:

9 a.m. to 10 a.m.—Registration.

10 a.m. to 12 noon—Seminars. First hour: "Taking the Kodachrome Picture," Ross A. Ross; "Photographic Make-up," Stanley R. Jordan; and "Photographs for Publication Purposes," Willard D. Morgan. Second hour: "Advanced Technical Problems of Kodachrome Exposure," Dudley Haskell; "Paper Negatives—Spotting, Working up of Prints," Frank Day; and "Print Clinic—a Candid Discussion of Submitted Prints," George Allen Young. Additional "Seminar Sessions" are being arranged, and will be announced later.

In the afternoon, a field trip will be held, including Lake Merritt, the Oakland waterfront and airport and other points of interest. Busses will leave from the Hotel Leamington.

From 2 p.m. to 3 p.m. Messrs. Ross, Jordan and Morgan will repeat their respective seminars and from 3:30 p.m. to 4:30 p.m., similar sessions will be repeated by Messrs. Haskell and Young. Two new seminars, "Projection Control and Toning," by P. Douglas Anderson; and "Snapshooters Problems and Rewards," by Sigismund Blumann, will be offered.

Thursday evening from 7:30 to 8:30 o'clock, "New Trends in Photography" will be discussed by Laszlo Moholy-Nagy and from 8:45 to 10:30 "Synchro-Flash Photography," by Willard D. Morgan.

Friday, July 26, 1940:

9:30 a.m. to 10:15 a.m.—"Artistic and Technical Problems of the Photo Mural," Ansel Adams.

10:30 a.m. to 11:15 a.m.—"The Seeing Eye," Eugene Neuhaus.

1:30 p.m. to 2:45 p.m.—"Toward a Constructive Understanding of Good Photography," Edward Weston.

3:00 p.m. to 4:30 p.m.—"Basic Portrait Lighting," Fred Archer.

4:45 p.m. to 5:30 p.m.—"Camera Journalism," Horace Bristol.

7:30 p.m.—Official Conclave Banquet and Photogenic Floor Show.

Saturday, July 27, 1940:

Western Camera Day on Treasure Island. Special Conclave events to be announced later, but will consist of preferred camera positions for holders of Conclave credentials.

Saturday morning, a special meeting will be held for those who wish to discuss plans for making the Conclave a permanent event, to be held annually in different sections of

*Readers are requested to add a postscript to letters intended for this department, expressly granting permission to publish, **and are urged to write as briefly as possible.**—Ed.

the west. Camera Club officers are particularly requested to attend this session, as well as the special luncheon which will probably be held on the preceding day for Camera Club representatives. Later announcements relative to these meetings will be posted at Conclave headquarters during the sessions.

In addition to the foregoing program, there will be one-man print shows by Weston and Mortensen, the nationally famous U. S. Camera collection and the All-Western, All-Color show of H. S. Crocker Co. Also a model contest to determine who shall be christened Miss Photogenic—the "Girl Who is as Pretty as a Picture." And real cash for the best pictures made as recounted in last month's Camera Craft.

All in all, it will be a grand affair and just as soon as we can get the material together we are going to send all camera clubs more data. Please tell them that. Tell them, too, to write to the General Chairman of the Western Amateur Camera Conclave at Room 321, Financial Center Building, Oakland, California if they want more information.

Cordially yours,
Edward H. Towler, General Chairman.

P.S. This is not the whole story by any means. The committee is working on several plans, ideas, additional privileges at the Fair, which are not as yet definite enough for announcement. All camera clubs and photographic dealers will be kept fully informed, so prospective Conclavers should keep in touch with one or the other for additional news.

Acknowledgement

Dear Sirs:

In the article which you published in May Camera Craft through an oversight I neglected to acknowledge the source of some material.

The original idea of photography as a new form of vision, I believe is due to L. Moholy-Nagy. The classification which I used is similar to the classification which he used in an article written in 1932 in Telehor, Czechoslovakian international review of the new vision applied to all arts.

In another part of the article there was a reference to Emerson's book "Naturalistic Photography," the fact that Emerson coined the phrase "pure-photography" and that Emerson was the first to recognize Steiglitz. These ideas were original with Beaumont Newhall. I believe they first appeared in print in his brilliant article on the history of photography in "Photography 1839-1937" published by the Museum of Modern Art in New York.

Sincerely,
Paul L. Hexter.

The Pageant of Photography

Dear Sirs:

It will be practically impossible to give a good description of the Pageant of Photography until the color exhibit is installed. This exhibit is coming from Newark, N. J. and should be on the walls of the Palace of Fine Arts about June 10th. Several other items are as yet not installed and it would be wrong to attempt a complete description of this exhibit with some of the most important items missing.

Would it not be better to prepare the article for the following issue of Camera Craft. At that time also a full schedule of exhibits will be made (changing shows). The proposed catalogue will not appear for at least a month so it would not be too late for proper treatment.

At present* there are three outstanding exhibits, in addition to the permanent galleries, which will remain until July 1st. These are shows by Edward Weston, Bernice Abbott and E. Atget. The Atget photographs of Paris were taken between 1900 and 1910.

Cordially yours,
Ansel Adams.

***For a list of the motion pictures currently being shown in connection with the Pageant of Photography, see Club Notes Dept.—Ed.**

The Photographer's Hymn Book

Dear Sirs:

Just thought you might like to know that in these parts that swell book "Make Your Pictures Sing" is affectionately known as the "Hymn Book." From the way we're selling them photographers have sure got religion.

Sincerely yours,
Jack Cannon.
Loeber's Camera Shop,
San Francisco.

Treasure Island Exhibits

Dear Sirs:

I heartily approve of the prominent way in which you have called attention to the Pageant of Photography at the San Francisco Fair. This is an extremely important exhibit and I trust that Camera Craft will keep us fully informed of the changing shows—if I miss any it means your subscription.*

It seems to me that you have rather neglected another very worthwhile exhibit on Treasure Island. What's wrong with the exhibit of photographs by California photographers in the California Bldg?** The show is not large (179 prints according to the catalogue) but the jury has upheld a high standard. So much so that the show compares very favorably with any international exhibit that I have ever seen.

If this letter is published it should record the fact that Fred Herrington and his committee have done a swell hanging job. In my experience this is an aspect of presentation that is often slighted by exhibition committees.

However, what I really want to say is, enjoy the Pageant of Photography to the full, but don't miss the show in the California Bldg.

Sincerely yours,
W. L. Linee.

***See Ansel Adams' letter for information available to date. A complete schedule will appear in August issue.—Ed.**

****Nothing.—Ed.**

What Is Your Photographic I. Q.?

Determine your photographic I.Q. with the following test. Read the statements given below and check the correct answers. The perfect score is 100%. Deduct 10% for each error. Excellent rates 90%, very good 80%, good 70%, fair to bad below 70%. Compare your answers with those on page 372.

1. No present day camera or film combination can equal the spectrum range capabilities of the human eye.

   True

   False

2. About 500 tons of pure silver are used annually throughout the world in the manufacture of photographic materials.

   True

   False

3. When using acids always add the water to the acid, never the acid to the water.

   True

   False

4. A Wratten K-1 filter with panchromatic film would give a true monochromatic rendering of a blue sky.

   True

   False

5. A composite picture is a harmonious, well balanced one.

   True

   False

6. A genre photograph is a trite scene or incident of everyday life typical of those made by most amateurs.

   True

   False

7. Chiaroscuro is the technique of producing in a picture, sharp silhouettes and strong contrasts by shooting against the light.

   True

   False

8. The U. S. Army had no separate corps of photographers, other than a few employed individuals, until its entry into the World War in 1917.

   True

   False

9. The discovery of a new class of dyes, the so-called "iso-cyanines," made panchromatic film possible.

   True

   False

10. In order to increase the size of a foreground object in relation to a background object one should use a longer focal length lens and a more distant viewpoint.

    True

    False

READERS PLEASE NOTICE

Camera Craft will pay $1.00 for each question submitted by a reader which is printed in this column. Questions can not be acknowledged or returned.

Club Notes

Forthcoming Exhibitions

Second Central American Photographic Salon of El Salvador. Address Foto Club de El Salvador, San Salvador, El Salvador. C. A. Closing date July 15, 1940. Photographers of Cuba, Mexico, Panama and Central America are invited to participate. August, 1940.

1940 Annual International Salon of Muncie Camera Club. Address Muncie Camera Club, 223 E. Jackson St., Muncie, Indiana. Closing date July 15. 1940. Entry fee $1.00, limit four prints. July 28 to August 4, 1940.

The First Annual North American Salon of Pictorial Photography. Address North American Salon, Administration Building, State Fair Grounds, Sacramento, Calif. Closing date August 6, 1940. Entry fee $1.00, limit four prints. Any photographer resident of North America is eligible. August 30 to September 9, 1940.

The First Annual Champlain Valley International Salon of Photography. Address Salon Secretary, Robert Hull Fleming Museum, Burlington, Vermont. Closing date August 14, 1940. Entry fee $1.00, limit four prints. August 26 to September 13, 1940.

Second Annual Atlanta National Amateur Salon. Address Mrs. George Bird, 685 Morningside Drive, N. E. Atlanta, Ga. Closing date September 9, 1940. Entry fee $1.00, limit four prints. October 1 to 20, 1940.

The 1940 International Salon of the Photographic Society of America. Address John P. Mudd, 173 Manheim Street, Philadelphia, Pa. Closing date September 12, 1940. Entry fee $1.00, limit four prints. September 25 to October 27, 1940.

The Photographic Salon of the Eleventh Annual Mountain State Forest Festival. Address Salon Chairman, Seneca Camera Club, Wilt Building, Elkins, W. Va. Closing date September 20, 1940. Entry fee $1.00, limit four prints. October 1 to 15, 1940.

Third Annual Tri-State National Salon of Photography. Address George D. Hedrick, 216 Eisfeld Bldg., Burlington, Iowa. Closing date October 1, 1940. October 20 to November 2, 1940.

The New York Salon of Photography. Address Salon Committee, New York Salon of Photography, 121 West 68th St., New York, N. Y. Closing date October 4, 1940. Entry fee $1.00, limit four prints. November 3 to 30, 1940.

Petroleum Industry Photographic Salon, sponsored by the Photographic Society of America. Address F. Quellmalz, Jr., Salon Director, Petroleum Industry Photographic Salon, c/o American Petroleum Institute, Room 2040, 50 West 50th Street, New York, N. Y. Closing date October 15, 1940. Entry fee $1.00, limit four prints. November 9 to 15, 1940.

8th Annual National Salon of the Yonkers Camera Club. Address Hubert L. Swapp, Salon Director, Yonkers Camera Club, Y. M. C. A., Yonkers, N. Y. Closing date October 15, 1940. Entry fee $1.00, limit four prints. November 2 to 17, 1940.

The Sixth Annual National Philadelphia Salon of the Miniature Camera. Address Mr. Hans Kaden, Salon Chairman, Architects Building, 17th and Sansom Sts., Philadelphia, Pa. Closing date October 21, 1940. Entry Fee $1.00, limit four prints. November 9 to 24, 1940.

The Fourth Rhode Island National Salon of Photography. Address Mr. A. J. Viera, Camera Club of R. I., 103 Westminster St., Providence, Rhode Island. Closing date October 24, 1940. Entry fee $1.00, limit four prints. November 10 to 17, 1940.

Second Annual Deep South Salon of Photography. Address H. L. Robbins, Salon Chairman, 1412 South 15th St., Birmingham, Alabama. Entry fee $1.00, limit five prints. This is an invitational salon open only to camera clubs south of the Mason-Dixon line. November 15 to December 1, 1940.

Contests

New York World's Fair Snapshot Contest is now being conducted weekly under the auspices of the Photographic Society of America. Any snapshot taken at the New York Fair is eligible and entries should be submitted, unmounted, to World's Fair Snapshot Contest, Dept. of Special Activities, World's Fair, New York. Photographers are urged to visit the Photographic Center, in the Hall of Industry and Metals, where there will be exhibits by famous photographers, and all photographers, beginners and advanced workers alike, may submit their prints for exhibition. A special section is reserved for snapshots. There are many other special photographic events and details may be obtained from the World's Fair Information Center, Hall of Industry and Metals, World's Fair, New York.

The General Electric Amateur Photography Contest is now offering weekly prizes for photographs of the San Francisco Bay Bridges or of the World's Fair on Treasure Island. The contest is open to all amateur photographers and will continue each week through Sept. 29th, 1940. A G-E Exposure Meter will be awarded for the best exterior night shot of either of the Bay Bridges or of Treasure Island illumination, including night shots of "Cavalcade of a Nation." A case of sixty G-E photoflash lamps will be awarded for the best interior shot of any exhibit on Treasure Island. Twenty additional prizes are also awarded weekly. Grand Prizes will also be given at the end of the contest. Entry forms may be obtained from your photographic dealer, the General Electric Exhibit on Treasure Island or the San Francisco Examiner. Names of the winners will be announced weekly on the Photography Page of the San Francisco Sunday Examiner.

A contest for photographs made of "Gardens on Parade" Exhibit at the New York World's Fair admits any photograph made between opening day and August 31st. Prints may be submitted in two classes, amateur or advanced, and a special contest for children is also to be held. For further details write to Mrs. Earle S. Rhine, Chairman of Photographic Exhibits, Gardens on Parade, World's Fair, New York.

The Department of Commerce of Pennsylvania is conducting a contest for photographs showing pictorial scenes or places or objects of historical interest in that state. The contest is open to all photographers and the closing date is Sept. 14th. First prize is $250.00 and there are 59 other cash awards.

Ice Follies Dual Contest will give candid camera fans and movie enthusiasts the opportunity of taking unusual pictures at The Ice Follies of 1940, now playing nightly at Winterland in San Francisco. Cash and merchandise awards will be given to the makers of prize photographs and movies. Lighting has been increased about 33% over last year so it is easily possible to take action photos without using a flash. It is so intense while the spotlights are on, that one can shoot Kodachrome movies with a cine-camera equipped with a f:3.5 lens or better. The candid camera contest closes on July

15th while the movie contest ends two weeks later on July 31st. Complete rules and entry blanks are being distributed by San Francisco photographic dealers.

Exhibitions

The Ninth Detroit International Salon of Photography is now being exhibited at the Detroit Institute of Arts, Detroit, Mich. The exhibition will be on view through June 30th.

The Third Annual Salon of the Memphis Pictorial Club is now displayed at the Brooks Memorial Art Gallery, Memphis, Tenn. 750 prints were submitted and 150 of these have been selected for hanging. The exhibition will remain on view through June 30th.

The 18th All-American Salon of Photography is now on exhibition in the Galleries of the Los Angeles Camera Club, 2504 West 17th St., Los Angeles, Calif. 208 prints were selected from entries totaling 1453, which is 2½ times as many entries as have ever been received previously. The Salon will remain on view until June 30th, when it will be shipped to Sacramento, Calif. The show will open there on July 4 and will continue through July 14th. The exhibition will be displayed at the E. B. Crocker Art Gallery and is sponsored by the Sierra Camera Club. Other showings in California cities are scheduled in the near future and the dates will be announced later.

A long list of the most outstanding movies produced in days gone by may be seen in conneciton with the **Pageant of Photography** in the Palace of Fine Arts at the San Francisco Fair. Pictures are shown twice daily at 2:30 P.M. and at 7:30 P.M. Following is a schedule through the month of July, all dates inclusive.

June 26-28. "Greed" (1924) Director, Eric Von Stroheim.

June 29-July 1. "The Outlaw and His Wife" (1917) Director, Victor Seastrom. "The Story of Gosta Berling" (1924) Garbo's first important film.

July 3-5. "Anna Christy" (1930) With Greta Garbo and Marie Dressler. Garbo's first talkie.

July 6-9. "Dream of a Rarebit Fiend" (1906). "High & Dizzy" (1920), with Harold Lloyd. "The Navigator" (1924), with Buster Keaton.

July 10-12. "Beau Brummel" (1924), with John Barrymore and Mary Astor.

July 13-16. "Safety Last" (1923), with Harold Lloyd and Mildred Davis.

July 17-19. "Robin Hood" (1922), with Douglas Fairbanks and Wallace Beery.

July 20-23. "The Kiss" (1896), made the censors howl. "Enoch Arden" (1915), with Lillian Gish, Wallace Reid, and Mildred Harris. "M. Beaucaire" (1924), with Rudolph Valentino, Bebe Daniels and Lois Wilson.

July 24-26. "I Am a Fugitive from a Chain Gang," with Paul Muni.

Announcements

The Biological Photographic Association will hold its Tenth Annual Convention at the Hotel Schroeder, Milwaukee, Wis., Sept. 12, 13 and 14. This society is interested in the further study of photography as applied to the biological sciences, and the improvement of its technique. Scientific photographers from all parts of the country will meet to exchange ideas and information on still and motion picture photography as well as the latest developments in color work. Formal papers will be presented outlining new methods of technique, and there will be informal round-table discussions which will be especially instructive. Commercial firms specializing in the manufacture of scientific apparatus and materials will exhibit and explain the use of their products. A salon consisting of natural color and black-and-white prints of biologic and clinical subjects will illustrate a very fine degree of perfection in biologic photography. Further information concerning the convention program, salon specifications and membership in the society may be had by writing to the Secretary of the Biological Photographic Association, University Office, Magee Hospital, Pittsburgh, Pa.

The Photographic Society of San Francisco has again been invited by the Indianapolis Camera Club to submit a set of prints for inclusion in that Club's Seventh Annual Invitational Exhibit. As only 15 representative clubs in the United States are extended the invitation, the Photographic Society of San Francisco may well be proud of their being selected.

The Associated Camera Club of the Chicago Area have selected a pin to be worn by the Association Club members. It will serve as a means of identification among the Association's many members.

The Greater Pittsburgh Photographic Society, of Pittsburgh, Pa., has voted to admit women members, beginning immediately. The club meets every Monday evening in their club rooms at 210 East Parkway, North Side, Pittsburgh, Pa. Features of the meetings and club activities include: lectures and demonstrations, technical discussions, monthly print competitions, field trips, darkroom classes, print analysis and criticism sessions. If the success of women members in other clubs is to be given any acknowledgement, we feel we should warn the male members to look carefully to their laurels. We can recall a recent competition in a major club where the ladies swept the first division to the amazed embarrassment of the male competitors.

"The Rangefinder," bulletin of the Maple Bluff Camera Club, of Madison, Wis., has blossomed forth as a smart halftone and letterpress job of twelve pages. Editor C. W. Sandley offers attractive layout and an interesting breezy style. Few clubs can boast such a handsome paper.

Club Activities

With the entire club acting as a jury, the Camera Club of Fitchburg, Mass., recently viewed and judged two traveling exhibitions from other groups. One show was from the St. Stanislaus Camera Club, of New York City, and the other from the Akron Camera Club, of Akron, Ohio. Such group judgings, when properly directed, offer considerable instruction in understanding and evaluating the qualities of prints.

The Chicago Camera Club, 137 No. Wabash Ave., Chicago, Ill., will be the guests of Mr. Stuyvesant Peabody, at the White Fence Farm, near Joliet, Ill., on July 27th, 1940. Club members will be given every opportunity to take pictures and from those submitted Mr. Peabody will select the best for his personal collection.

The Photographic Society of San Francisco, who enjoy a particularly ingenious Field Trip Chairman, Mr. Warren Callow, recently visited the Mission Bay Roundhouse of the Southern Pacific Co. Such a location undoubtedy offered a variety of interesting pictures. Members were warned to omit white flannels and white shoes.

The California Camera Club, of San Francisco, Calif., held a very successful trip to the vineyards and winery of the Italian Swiss Colony, at Asti, Calif., on June 2nd. The members were shown every courtesy by the company, who provided picnic tables, excellent wine and gave them free run of the entire plant and grounds. Prints submitted will be judged within a short time and three prizes will be awarded; the winner's choice of a case of wine.

From "Highlights," club bulletin of the Fresno Camera Club, Fresno, Calif., we learn of the American Olympics Camera Contest, held June 8th, in conjunction with the National A. A. U. Track and Field Championships. Though the meet does not take place until June 28th and 29th, a number of athletes, including many famous champions, were there to pose and perform for camera fans. In addition, "Girls of the Week" from Fresno State College were also available as models. Platforms for angle shots, reflectors and other equipment were available to aid the cameraman. Many prizes are to be awarded for the finished prints. Clubs in other localities, featuring major track events, may be able to obtain the cooperation of the promoters for similar previews.

The Photo Clan, of Worcester, Mass., is now preparing a traveling salon. When it is available for distribution, a further announcement will be made.

The First Annual International Salon, sponsored by the Vancouver Photographic Society, has been reported as an unqualified success. 272 contributors submitted 1026 prints, from which 330 were selected for hanging. Entries were received from throughout the world and many of photography's most famous names were represented.

The Kodak Camera Club of Rochester, Kodak Park, Rochester, N. Y., held its Spring Exhibition, during May, and 750 entries in black-and-white and color were received. This group maintains a Club Cottage on Lake Ontario and plans are underway for an active summer.

"Synchronized Flashes," club bulletin of the Light and Shadow Club, of San Jose, Calif., reports that between 300 and 400 photographic enthusiasts attended the lecture given by Edward P. McMurty, F.R.P.S., recently in the San Jose Civic Auditorium. The lecture was sponsored jointly by the Pacific Camera Guild, the Palo Alto Camera Club, the San Jose Camera Club and the Light and Shadow Club.

An exhibition of prints from the Marin County Camera Club are now being exhibited at the California Street Camera Mart, 215 California St., San Francisco, Calif.

The Sixth Annual Exhibition of photographs by the students of the classes conducted by J. Ghislain Lootens, F.R.P.S., were recently displayed at the Central Branch, Y.M.C.A., Brooklyn, N. Y. These classes are given under the auspices of the Tripod Club, of the Y.M.C.A., and new classes will begin in September of this year. They will include the Fundamentals of Photography, Advanced Technique, and special courses in Portraiture and Retouching. Full information regarding these courses may be had by writing the Tripod Club, Central Branch Y.M.C.A., 55 Hanson Place, Brooklyn, N. Y.

The Cinema Club of San Francisco featured demonstrations of new equipment at their June 18th meeting. The Skinner Mfg. Co., demonstrated the new Voca-Titler and the new Eastman Magazine-Loading Cine-Kodak 8 was also presented for observation.

The Harrisburg Camera Club's traveling show of forty prints, selected from the winners of the monthly competitions and annual members' show is now ready for the road. Clubs desiring to have this show, write to W. D. Morrow, Chairman, P.O. Box 844, Harrisburg, Penna. We are interested in exchanging with other clubs and desire to complete the schedule as early as possible.

The Bensonhurst Camera Club has recently reorganized and has several openings for new members. They have an active program planned and anyone interested may drop in at any meeting. Meetings are held every Thursday at 8:30 P.M. at 2147-86th Street, Brooklyn, N. Y., or he may address the secretary, I. Sandrow, 2021-78th Street, Brooklyn, N. Y.

New Clubs

The Inland Empire Camera Club, of Spokane, Wash., was recently organized among advanced amateurs in both the still and movie fields in this area. The new club will welcome visitors and will be glad to exchange ideas and correspondence with other groups. Address correspondence to Mr. Jack Doyle, Secretary, at the club rooms, 515 W First Ave., Spokane, Wash.

Photographic Instruction

Glen Fishback, famous Sacramento photographer, has opened the Fishback School of Photography, 2264-10th Ave., Sacramento, Calif. The first class, started some weeks ago, has been so enthusiastically received that a second group is being formed. Instruction of the second group began June 13th and will comprise 11 sessions ending July 9th. The course includes an ideal combination of theory and practice with the emphasis on the practical aspects, featuring field trips and demonstrations. Classes will be limited in number so that each student will receive the maximum in attention and personal instruction. For further details, write the above address or phone Com. 864.

Notes and Comments

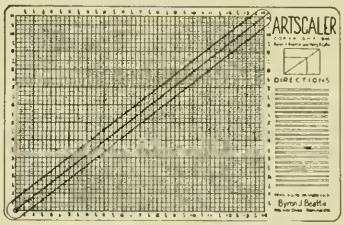
New Products

The new Photrix Cine Photoelectric Exposure Meter, designed especially for amateur movie photographers and cine studios, has just been introduced by the Intercontinental Marketing Corp., New York City. The new meter has a movable scale of operating speeds with a range of from 6 frames per second to 128 frames per second, and can be set according to the shutter speed of the cine camera with which the meter is being used. Thus, once the emulsion speed setting for the film in the camera is made, the pointer indicates the F: stops directly, without any further adjustments. This continues until a camera with a different operating speed or a different type of film is used. Weston and Scheiner ratings are both given. Price of the new Photrix Cine is $22.50.

The Crawford Flexichrome Process is a new method of obtaining colored prints from black and white negatives, introduced by the Crawford Flexichrome Co., 46 E. 50th St., N. Y. C. Prints may be made by contact or projection on special Flexichrome film. When processed these prints look like ordinary black and white prints to the eye; however, when flexichrome colors are applied with a brush these prints react quite differently. Highlights will not accept color whereas the other tonal values accept the color in the proper tone. It is said that the quality of colored prints compares favorably with the results from Wash Off Relief and kindred processes. Although the technique improves with experience, the manufacturers say that no special skill is required for satisfactory results. For further details, write the above address.

A new Omega Three-color Separator just announced by Simmon Bros., Inc., 37-06 36th Street, Long Island City, N. Y., is designed to avoid the two bugbears in the making of color separations: the need for an absolutely light-tight darkroom and the transmission of filter blemishes to the negative. As the film is held in a conventional film holder in the enlarger the danger of stray light striking it is eliminated, and in the Omega Three-color Separator the light is transmitted through the filters first, then through the color transparency, and up to the sensitive film, thus minor imperfections in the filter have no effect on the negative quality. The Omega Three-color Separator can be used with an Omega Enlarger equipped with a copying attachment or with any camera with a double extension bellows. Price is $22.50.

The Artsealer, a new precision instrument which uses the diagonal line principle for determining any desired degree of reduction or enlargement from art work or photographs has just been released by Beattie & Hoffman, 906 N. W. Couch St., Portland, Ore. Printed on heavy celluloid, the device measures copy up to 11x14" at one ¼" intervals. The scaler is placed over the copy. The



Artscaler

piveted pointer is swung to the upper right corner of the copy. The user reads up and across to find a new height, across and down to find a new width. In-between dimensions are found by interpolation. One advantage of the Artscaler over other methods is the facility with which a photograph can be cropped on four sides, measured, and scaled in one operation, simply by placing it over the particular part of a picture to be reproduced. Price $3.95.

Badger Hydraulic Agitator

The Badger Hydraulic Agitator, distributed by the American Trunk and Case Co., 40 S. Wells St., Chicago, Ill., offers a practical, economical method of agitating films during development. It operates from any source of water without special connections and the speed of agitation can be regulated by the flow of water. Made of acid resistant metal the Badger Agitator will accommodate any size roll film tank. There are no electrical connections and nothing to get out of order. Price $3.95.

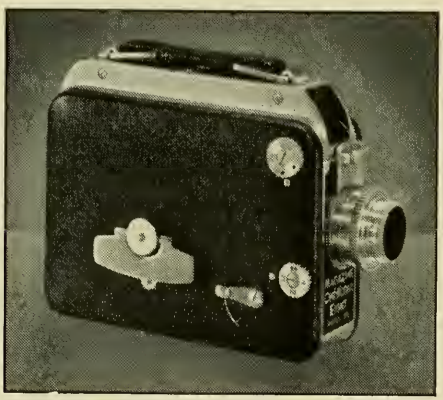
A new Electronic Photo-Timer has been announced by the Transducer Laboratories, 42 W. 48th St., N. Y. C. This company's years of experience in electronics and laboratory equipment has developed this instrument. The Electronic Photo-Timer has no springs to rewind, no clock to watch, no motor of

any kind, and it operates on A.C. or D.C. current. It has a time range of 1 to 50 seconds. Its operation is extremely simple yet it allows for the utmost flexibility. Price $12.50.

Agfa Ansco introduces three new cameras. A new low priced model of the Speedex, known as the Agfa Speedex Junior. Takes pictures in the popular 2¼x2¼" size. This is a fixed focus camera with an F:11 lens and shutter giving instantaneous and time exposures. Also has body shutter release and direct optical view finder. Price $11.00. The new Agfa Pioneers and Agfa Chiefs are both available in two sizes, PB 20's taking pictures 2¼x3¼" on No. 620 film and PD 16's taking pictures 2½x4¼" on No. 616 film. These cameras also feature eye level view finders and body shutter relcases. Prices range from $2.65 to $3.95.

A new F-R Stainless Steel Thermometer especially constructed for photographic use has been introduced by the Fink-Roselieve Co., Inc., New York City. It is designed to fit all developing tanks and a special clip allows it to be used equally well in trays. The easily readable scale registers from 50 degrees to 90 degrees F. Price $1.00.

The new Vokar Projector, for both bantam size and 35 mm. 2 inch slides, has been introduced by the Electronic Products Mfg. Corp., 208 West Washington Street, Ann Arbor, Mich. The neat and compact new Vokar Projector has a 100 watt prefocussed lamp, Bausch & Lomb condensers, and Vokar F:3.5 lens. Price is only $9.95.



Magazine-Loading Cine-Kodak 8

A new Magazine-loading Cine-Kodak 8 has just been announced by the Eastman Kodak Co., of Rochester, N. Y. It is a real champion of home movie cameras, offering three-second loading with compact magazines; six interchangeable lenses; four speeds from 16 to 64 frames a second; a sturdy, long-running spring motor; a single enclosed direct-view finder that serves both standard and accessory telephoto lenses; an automatic footage indicator; a pulse button that throbs against the user's finger each three inches of film; an ever-ready exposure guide; and accessory filters and similar aids. With standard 13 mm. F:1.9 Kodak anastigmat, it is priced at $97.50.

Brownie Reflex

A new twin-lens Brownie Reflex has been announced by the Eastman Kodak Co., of Rochester, N. Y. Retailing at $5.25 it is ideal for the young beginner in photography. Most notable of its many features is the large, hooded reflex view finder that gives a full negative size image, crystal clear even under adverse lighting. Brownie Reflex takes twelve pictures, 1⅝ inches square on No. 127. Having only the simplest adjustments, the photographer can devote practically all his attention to the subject.

The Gem Print Washer is a scientifically correct 14-inch washer, designed and patented by a photographer, E. J. Fritz, 1427 N. 45th St., Seattle, Wash. It will wash 75 postcard size prints at one time and is priced at only $2.95.

The new Foth Derby II, just announced by Burleigh Brooks, Inc., 126 W. 42nd St., New York City, possesses all the advantages of this compact, low-priced miniature plus a quick-focusing coupled range finder. The range finder is of the superimposed image type and permits instant, accurate focusing from 2½ feet to infinity. Foth Derby II takes 16 pictures on standard V.P. film and is available with either F:3.5 or F:2.5 anastigmat and focal plane shutter to 1/500th second. Foth Derby II with F:3.5 is $31.00; with F:2.5, $36.00. Model I Foth Derby cameras are still available and owners of this model may have range finder installed for $11.50, through your local dealer.

Two new darkroom aids have been introduced by the L. R. Biber Co., Times Square, New York City. The Bico Darkroom apron, featuring a built in metal belt which eliminates tie strings, is made of chemical resisting rubberized material. Waist line model is 95c; full length $1.10. The Bico Pliofilm Transparent Enlarger Cover keeps the enlarger dustless and clean. The cover is dustproof, acid proof and will not crack, curl or stick. Junior size is 35c and the senior size $1.00.

Wollensak F:2.7 Cine Velostigmat Wide Angle

Wollensak Optical Company announces for the movie maker who wants critical focusing a 15 mm. focus F:2.7 Cine Velostigmat Wide Angle lens in precision micrometer focusing mount. This new micrometer focusing can be set from 1 foot to infinity. Designed especially for 16 mm. cameras, this special lens can be used on the turret model cameras without interfering with the camera or without injury to lens. The 15 mm. focus F:2.7 Cine Velostigmat Wide Angle Lens is priced at $42.50, in micrometer focusing mount; or is available as heretofore in fixed focus type of mount at $27.50.

A new Solar Enlarger, the Heavy Duty Professional Model, has been introduced by Burke & James, Inc., 223 W. Madison St., Chicago, Ill. This model offers wide adjustment and versatility, using lenses from 3½ to 9 inches in focal length. 4x5″ model is $89.50 and the 5x7″ model is $112.50, both prices without lenses. Write the above address for descriptive literature and prices.

The Corsair I and the Twinflex are two new cameras recently announced by the Universal Camera Corp., 28 W. 23rd St., N. Y. C. The Univex Corsair I is a double-framed 35 mm. camera with F:4.5 Anastigmat lens and shutter speeds from 1/25th to 1/200th seconds. It features a body shutter release, automatic film transport, focusing from 3 feet to infinity and a built in extinction type exposure meter. Price is $16.75. The Univex Twinflex, twin lens reflex type camera, is priced at $4.95. It features ground glass focusing from 3 feet to infinity.

The new Moore Long Fellow Enlarger has been introduced by the Elkay Photo Products, Inc., 303 Washington St., Newark, N. J. This new enlarger features a new departure in design as both enlarger and baseboard are mounted on a 90-inch chromium tubular upright. When not in use, both enlarger and baseboard may be swivelled against the wall permitting considerable saving in space in compact darkrooms. It is equipped with three lens boards, accommodating all normal focal lenses up to 6 inches. Other features are a perfected cooling system, double condensers, and micromatic focusing device. Price without lens $50.00.

The Miracle Salon Brochure is designed to solve your problems of what to do with your enlargements. It presents a heavy metal binding and celluloid cover in which your pictures become the pages of the book. Prints are mounted on a series of narrow strips in the binding which operate on the principle of the first-aid bandage strips. You peel off a glassine covering and press your print to the adhesive surface. They will hold 15 prints or 20 to 30 mounted back to back. Available in three sizes, 5x7, 8x10 and 11x14 at $1.00, $1.50 and $3.00 respectively. For further details write Edwin M. Phillips & Co., 420 Lexington Ave., N. Y. C.

Booklets and Catalogs

"The Densitometer and Its Use in Color Printing" is the title of a new manual just released by the Albert Specialty Co., 231 So. Green St., Chicago, Ill. While published specifically for use with the new Marshall Densitometer, this manual offers a world of valuable information to everyone interested in making good color prints. Text and illustrations are non-technical throughout. Some of the points covered are: instructions outlining the general requirements of good color prints, how to make accurately balanced separation negatives, how to use gray scales, general use of the densitometer, how to check separation negatives, etc. The manual is supplied free of charge with the Marshall Densitometer. Separate copies may be obtained from the above address for 25c each.

A giant new Mid-Year Clearance Sale Catalog is now ready for distribution by Burke & James, Inc., 223 W. Madison St., Chicago, Ill. Catalog includes 88 pages fully illustrated. A copy may be obtained without charge by writing the above address.

A new catalog listing summer specials is now ready for distribution by the Central Camera Co., 230 So. Wabash Ave., Chicago, Ill. Hundreds of bargains on still and cine cameras and all types of photographic equipment are listed. Write the above address for your free copy.

"Agfa Formulas for Photographic Use" is the title of a new booklet just published by Agfa Ansco, Binghamton, N. Y. It includes over 45 formulas for developing, fixing, short-stop, toning, reducing, intensifying and desensitizing solutions. A separate section of the booklet gives a detailed description in simple language of the chemistry of development, and also presents new information on developer exhaustion and time-temperature compensation. Booklet is priced at 10c. Copies may be obtained from the above address, or from your photographic dealer.

A new mammoth photographic catalog, No. 400, has just been published by George Murphy, Inc., 57 E. 9th Street, N. Y. C. Catalog contains 272 pages of photographic materials, with many illustrations. Copies may be obtained for 25c which will be credited to the first purchase of $1.00 or more.

A catalog of Ensign Cameras for 1940 is now available from G. Gennert, 20 W. 22nd Street, N. Y. C. Catalog illustrates and describes the popular Ensign Cameras which will fit the need and pocketbook of any photographer.

Flash data on a ruler has been provided by the Kalart Co., 915 Broadway, N. Y. C. This handy celluloid ruler of pocket size is calibrated in inches and meters on one side, and on the other, exposure information for both Wabash and Mazda lamps is given. The

"Flash Factor System" of calculating exposures is explained and a definite factor is given for all lamps. Rulers may be obtained by writing the above address and enclosing 10c in coin or stamps to cover handling and postage. Those sending in will also receive copies of the "Kalart Speed Flash Pictorial."

Announcements

Sweeping price reductions affecting their entire Photolamp line have been announced by the General Electric Company, Nela Park, Cleveland, Ohio. For example, the popular "Mighty Midget" flash lamp has been reduced from 20 cents to 13 cents. Similar reductions have been made in all other flash lamps, photofloods and enlarger lamps.

Special combination prices on tripods and tripod heads are now being featured by the Testrite Instrument Co., 57 E. 11th St., N. Y. C. A Stanrite Tripod and a Panrite Tilt Head may be obtained in combination for only $9.25. Eighteen different combinations are available. See them at your photographic dealer or write for descriptive material to the above address.

Braquettes offer a simple, economical way to hang your pictures. Braquettes are adjustable to any size. The pictures may be changed in a few seconds. Price $1.00 each. See them at your dealers or write Braquette, Inc., 225 Fifth Ave., N. Y. C. for descriptive circulars.

The jury for the $1500.00 Golden Anniversary Picture Contest sponsored by the Folmer Graflex Corporation has just been announced. They are as follows: Ansel Adams of San Francisco; William L. Chenery of New York City, Editor of Collier's Weekly; Wilson Hicks of New York City, Picture Editor of Life Magazine; T. J. Maloney of New York City, Publisher of the U. S. Camera Annual and of U. S. Camera Magazine; Paul Outerbridge of New York City, famous color photographer; Valentino Sarra of Chicago, Ill., eminent commercial illustrator and Edward Steichen of Richfield, Conn. The contest runs from July 4th to Labor Day. Entry forms can be obtained from all Graflex dealers.

The Albert Specialty Co. has again expanded with the purchase of the tools, dies, and finished products of the Besbee Products Corp., of Trenton, N. J., manufacturers of the motion picture accessories known under the trade name of "Besbee." The Albert Specialty Co. will continue to manufacture and distribute the popular Besbee products under their present name.

Ideas for increasing your income in your own community are now being offered by Don Riesner, P.O. Box 206-C, Waukesha, Wisc. Sheets of these ideas will be mailed for $1.00.

Plans for the giant Chicago Photographic Show which combines the conventions of the Photographers' Association of America and the National Photographic Dealers' Association are now almost complete. The meeting, which will take place at the Stevens Hotel, Chicago, Ill., August 19th to 23rd, will be the biggest photographic event of all time. The trade show itself will include exhibits by nearly 140 exhibitors. Lectures and demonstrations for both professional photographers and dealers will prove of great value. Entertainment is not being neglected. Each night there will be a banquet or dancing where photographers can enjoy themselves. No professional photographer or dealer can afford to miss this important event.

Photographic tours through California, Arizona and Mexico under the guidance and instruction of E. W. Blew, A.R.P.S., famous pictorialist, are now available to individuals and parties. Every type of photography: desert, marine, landscape, and mountain comes within the scope of these tours. You study photography as you travel, under an expert, and develop your films each night. A rare opportunity to improve your photographic work and at the same time to enjoy yourself to the fullest extent. For complete details write E. W. Blew, A.R.P.S., 130 N. Greenleaf, Whittier, Calif.

P. & H. developing will now be taken in limited quantities by the P. & H. Corporation, 7000 Romaine St., Hollywood, Calif., in response to increasing demand for this service. Cost is nominal: 35 mm. film developed only is 25c per roll; developed and print strip, or transparency $1.00 per roll; developed and enlarged 3¼x4¼", $1.50 per roll; developed and enlarged 4x6", $2.00 per roll. Other sizes of film priced proportionately. Write the above address for a complete price list.

Wabash Superflash and Superflood Photo Lamps have been radically reduced in price announces the Wabash Photolamp Corp., 335 Carroll St., N. Y. C. Reductions up to 60% have been made. For complete details see your photographic dealer.

Answers to What is Your Photographic I. Q.

1. False. Films can be sensitized to X-Rays and Ultra-Violet rays at the short end of the spectrum and to Infra-Red rays at the long end, all of which are invisible to the human eye.
2. True. This is a fair estimate of the approximate quantity used.
3. False. The reverse is proper procedure. The less active chemical should be added to the stronger one for in that way the violence of the reaction is much reduced.
4. False. A K-2 filter and panchromatic film is recommended for correct monochromatic rendering.
5. False. A composite photograph is one made from two or more negatives.
6. False. At least this is an inadequate and misleading definition. Genre refers to a style of painting, or to subject matter through which the artist deals realistically with scenes from everyday life.
7. False. From Webster: The arrangement or treatment of the light and dark parts in a work of art . . . whether in monochrome or in color. Or, the art of so arranging the light and dark parts as to produce a harmonious effect.
8. True.
9. True. The iso-cyanine dyes made it possible to sensitize photographic emulsions to red light.
10. False. To produce the desired change one would need to use a shorter focal length and a nearer viewpoint.

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LAGUNA BEACH CALIFORNIA

Malahat Drive, Vancouver Island, British Columbia, by Ross A. Ross . . . One of a series of forty-three scenic prints reproduced in four colors, direct from original transparencies, now being distributed in various localities throughout the West at Service Stations selling Standard Oil Products.

The West In Natural Color

Frank E. Feliz

AMERICA'S travel industry has been a leading sponsor of color photography ever since its inception, for tourist organizations have proved that the prospective traveler is much more likely to be sold, with profitable results, by the actual scene when reproduced in advertising and printed literature in natural color.

Each year the application of color photography in the stimulation of travel has been expanding into new fields. This summer thousands of Western motorists and vacationists traveling to and from the Golden Gate International Exposition have given enthusiastic acceptance to a campaign that features the use of color photography in a new and interesting way by a major company to build sales and goodwill throughout its territory.

This is the 1940 Scenic Art Print Program of the Standard Oil Company of California. Purpose of this program is to attract motorists into service stations selling Standard Oil Products by offering them pictures, in natural color, of famed Western scenic attractions. Forty-three carefully selected views, of which this month's frontispiece is typical, were reproduced in four colors direct from natural color transparencies. More than 9,000,000 of the prints are now being distributed in various localities throughout the West.

Proof of the value of this natural color photographic medium was obtained in two pre-campaign tests, made in 1938-39 in Oregon and Arizona. At that time several test issues of regional scenic attractions were made in natural color print form, and the enthusiastic acceptance of these prints

Figure 1. Making 11 x 14 screen positive from separation negative with 200 line screen in place. Focusing up on ground glass.

Figure 2. Color correcting 11 x 14 screen positive of Redwood Highway color shot.

by motorists, the general public and community organizations led to the comprehensive campaign of 1940's forty-three Western prints.

In laying the foundation for the big 1940 program, more than 5,000 contacts were made with photographers in both amateur and professional classifications, outlining the requirements of the Western scenic print series. From this group over 800 individual photographers submitted upwards of 5,000 color transparencies. Months of inspection and comparison by Standard officials and technical experts brought this original file down to the final forty-three selected transparencies.

While comparisons are relative, and we have to rely on reams of correspondence, the amateur color photographer should be pleased to hear that his fellow tyros made an excellent showing in the print series. New opportunities for the color amateur are borne out by the fact that of a total of twenty-eight photographers whose work was used in the final forty-three prints, there were six who are acknowledged amateurs, never having sold a print before. Out of the more than 800 photographers who submitted transparencies, this seems a splendid showing for the amateur colorist.

To give you a brief preview of the winning amateurs; there were transparencies from a housewife, a dental supply manufacturer, an insurance executive, and a college instructor, among others. For instance, Ruth Henning, a Seattle housewife, had planned for two years to take the natural color shot of Mount Rainier with a wildflower foreground, and it was last spring that her successful 35 mm. positive was made, with a regular Argus camera; Model A, standard f:4.5 lens.

Then there was Earl Tucker, whose picture of Lake Mead in the lower gorge of the Grand Canyon above Boulder Dam won a place in the series.

Figure 3. Making press plate in photo-composing machine, printing on light sensitive coating on zinc metal from glass positive.

Figure 4. Pressroom superintendent checks first press run of 15 prints on single 35 x 45 sheet for color register.

Shooting a Retina I with F:3.5 Ektar lens, Tucker's film was made from a speedboat at 1/250 of a second to offset motion.

Down in Tucson, Arizona, W. L. Bowers is district manager for New York Life Insurance Company. On one of his weekend "shooting" tours with a Weltini and 50 mm. Zeiss Tessar lens last summer, Bowers obtained a color photo of the Chiricahua National Monument that was judged best of all submitted.

One of the most popular of the series is the Snowmass Valley, Colorado, view made by Carl Blaurock, a Denver dental supply manufacturer, with his Dollina II and Schneider F:2.9 lens. Rich in shades of red and green, running into heavy shadows on the distant range, this view is a fine example of planned composition and careful technique, as the foreground exposure had to consider a light tan streak of vegetation that gave the view excellent color balance when correctly made.

In fact, practically all the print series reveal the importance of basic exposure rules as set forth by the film manufacturer in the booklets on Kodachrome photography.

Color balance is most important, and with careful exposure meter readings that insure balanced exposure within the register of the lightest and darkest shade, the average color photographer will secure a better transparency, by selecting a reading closest to that of the dominant or favored colors in the scene. That accounts for some of the dramatic foreground prints with brilliant greens and yellows. (see Malahat Drive frontispiece), in the foreground, where these light colors on trees or shrubs lend third dimensional perspective to the view. This is true even though the

mountains or sky may go beyond actual register in deeper blues and shadows than are visible to the eye on location.

The professional color photographer, naturally, is still the mainstay of natural color reproduction. His understanding of pictorial values makes him indispensable in a big campaign that must be complete on schedule and with uniform standards of excellence.

That is the reason, undoubtedly, that in Standard's Western print series you will find the work of Ivan Dmitri, John Kabel, Ansel Adams, Horace Bristol, Michael Roberts, Fred Bond, Ross A. Ross and many other prominent color photographers whose pictures rank consistently in the forefront of the nation's color film produeers.

Technical data of interest to all color photographers is now being completed for a showing of Standard's Western Scenic Prints at the Western Camera Conclave in Oakland this month. Other exhibits in major Western department and photographic stores are also being arranged, with a group of traveling salons to show the forty-three prints to interested audiences.

The sizes of Kodachrome film used ranged from the 8 x 10 cut film to the miniature sizes, with the 4 x 5 topping the list with 22 transpareneies out of the total of 43 prints. There were seven 5 x 7 inch, two 8 x 10's and two 3¼ x 4¼ positives seleeted, with ten in the 35 mm. size.

A wide range of cameras is represented, with the Speed Graphie, 4 x 5 size, attaining new recognition with ten pictures accepted, according to data available at this time. Other cameras used include the 5 x 7 Cyclo-Graphic of John Kabel, Ivan Dmitri's trusty Leica, several Kodak Retinas, with representation by the Exakta, the Weltini, the Dollina, and the Argus.

Western photographers are well represented in the Scenic Print series. There is Ansel Adams' dramatic view of Mount Lassen, taken with a 5 x 7 Juwel and 7″ Goerz Dagar lens; Horace Bristol's shaded study of the Apache Trail in Arizona from a Soho Reflex positive, and the remarkable transparencies of Michael Roberts, who took the first natural color shot ever made for commercial reproduction in Carlsbad Caverns with an 8 x 10 Agfa View camera and 2,000 watts of artificial light. Roberts also took the Hawaii color shots, waiting five days with an 8 x 10 camera setup to take the tropical Nuuanu Pali color view.

Evidence of the problems enconntered in assembling the views is shown by the fact that, despite the thousands of transparencies submitted, it was necessary to send out several color photographers to obtain the final few scenic views required.

The campaign was already under way, presses were rolling on the first section of the forty-three print series, and still some of the views wanted were not forthcoming. To point out the painstaking efforts made to get exactly the right color view, it should be noted that the elements of budget investment, public interest, and quality standards of production were constantly considered.

Here we have a brief "inside story" of how one of these important last-minute assignments was handled by Ross A. Ross of San Francisco, whose color work has been receiving increasing recognition, and who was given the task of securing shots of several remaining subjects.

"Day Dreams" *Arnold E. Pearson, Seattle, Wash.*

Marshall Field 1940 Salon,

First Prize, Amateur Division—General Class

"The deadline was uncomfortably near," says Ross, "and weather conditions unbelievably bad when I was given the assignment to cover a number of scenic areas for the series. Leaving San Francisco in early February, I did 6,500 miles by automobile, airplane, motorboat, and snow-shoes, from Southern California to British Columbia, Washington, Idaho and Utah.

"I used a 4 x 5 Speed Graphic camera and a 4 x 5 Korona View camera, six inch and eight and one half inch Tessar lenses, 4 x 5 Daylight Kodachrome Professional Cut Film. The most useful articles on the trip, other than camera equipment, were a specially designed knapsack, my sleeping bag, and a can-opener . . . usefulness of the latter should be obvious to anyone who has traveled in resort areas, out of season.

"The pictures had to be made to the very high standards set by Standard. The requirements were three: 1) that the transparencies depict a typical scene in the area specified, that is, one that would be readily recognizable and identifiable by the average tourist; 2) that the pictures have a high degree of pictorial quality; 3) that the transparencies be technically perfect for best reproduction.

"Frankly, whatever success I had in meeting these high standards was due solely to my firm conviction that it can't rain forever! Each accepted Kodachrome I made represented an average of five days waiting under shelter near a previously chosen camera location while the rain did a Sadie Thompson. Most of my pictures were shot during all too rare breaks in storms. Even Death Valley, most arid spot in California, greeted me with the total annual average precipitation in a single day. But I was rewarded later with a few hours of crystalline clear air and magnificent skies. At Lake Harrison, British Columbia, I got my usual quota of five days of rain, but on the sixth day Jupiter Pluvius rested, and while the natives hung out their shoes to dry in the warm, brilliant sun, I got my pictures. This pattern repeated itself with disconcerting regularity in other areas of my assignment.

"Because of pressure of time, all my Kodachromes were shipped direct from Rochester after processing, consequently I did not see any of my pictures until I returned to San Francisco, by which time selections had been made, plates completed and press runs started.

"My best advice to beginners in color is: Forget all you know about black and white. Color film is a new and different medium, and its successful use requires a new and different approach. Study the color harmonies and color balance of good paintings; be patient in waiting for light of the proper color."

The success that crowned Ross' efforts is best shown in six beautiful color views of the West, including a splendid print of the Mormon Temple in Salt Lake City.

Bearing out the observations of Ross were comments by other photographers on their objectives in the Western print series, as outlined by Standard and the official selection group.

Said John Kabel, "Good color photos should be pictorial expressions of the way the average person feels about the subject, and, to make it a

really popular picture the photographer must key his work to public demand and taste."

Fred Bond, who contributed four fine transparencies to the series, expressed his thought that "color photography, to be effective, must be a happy combination of record and artistic rendering." And there were other similar statements that set the pace for the quality of composition, the technical observation of color range and exposure, and the study of the subject matter in achieving successful results.

An outstanding feature of the Western scenic print campaign was the opportunity it provided for showing the technological improvements that have been made in the last few years in the lithographic process for reproducing natural color photography.

Over two years of applied reproduction technique was studied to develop the final method of producing first-quality lithographic prints direct from original transparencies. It is interesting to note that the requirements of the reproduction process were made a basic factor in the "shooting" technique of the photographers who were given special assignments to obtain scenic transparencies which were not available in the original group submitted.

Our best source of information here is Richard S. Kauffman, technical director of lithographic reproduction for Crocker-Union, and an expert on color photography. Mr. Kauffman's comments on the requirements of color transparencies to be used for lithographic reproduction will be of especial interest to photographers interested in producing positives for commercial acceptance.

While these requirements may seem simple enough, they are definite checking points in planning all color shots. For commercial reproduction, all color transparencies should have: 1) Well planned color balance. 2) Correct exposure. 3) Sharp definition throughout. 4) Lowest possible contrast range.

Unfortunately, in scenic work, it is difficult to abide by these rules in many instances, for color balance and contrast range often depend on subject matter required. There is sometimes little the photographer can do to control the factors of contrast range or balance of color, especially if lighting conditions, "shooting" location, or weather conditions are unfavorable. However, patience and study will help with even the most difficult subject, and can mean the difference between a successful shot and a flat, uninteresting picture.

In Mr. Kauffman's own words, "There has been a great deal said about the quality of color film that reproduces best, but, in actuality, the transparency that looks best to the eye in all the four photographic factors mentioned is usually the best for reproduction."

Difficulty was also encountered in reproducing transparencies with colors out of balance, as it created the technical problem of attempting to restore normal balance to the finished print through a manipulation of the lithographic process.

To classify the accepted types of color photography used by the lithog-

rapher in the order of preference for reproduction, Mr. Kauffman lists: 1) Separations direct from the subject, (there is less handwork and retouching in direct separation, although a color guide, such as a Carbro print, must be included with direct separations). 2) Professional cut film in color. 3) Miniature color film. The latter, according to Mr. Kauffman, is not so acceptable as the professional cut film, as color rendering is sacrificed in order to obtain the speed necessary when using a miniature camera. Contrast, too, is increased over the cut film making the material much more difficult to separate. Furthermore, the extreme enlargement necessary when reproducing miniature films tends to produce a print lacking in definition. Despite these problems, however, ten of the forty-three Western prints were from 35 mm. Kodachromes, indicating the photographic excellence of this size transparency under favorable conditions.

In preparing the positive transparencies for lithographic reproduction the separation procedure followed on a large scale job of this type has to be standardized. Through the various stages of development this process was finally established as follows:

1) All separations were made from the original color transparencies enlarged direct on Cramer Panchrome matte plates. An Elwood vertical enlarger was used for this work. Lens equipment varied in focal length depending on the size of the transparency. Only lenses of the highest correction were used. The lens used for separating the miniature transparencies was a 105 mm. Eastman Kodak Projection Anastigmat f:4.5. Matte plates were used so that the negatives could be easily retouched. From each transparency four of these continuous tone separations were made, using sharp-cutting filters as recommended by Eastman. These filters were: #29 for the red; #61 for the green; #49 for the blue, and the regular K3 yellow filter for the black plate. The continuous tone negatives were made by enlargement to 11 x 14 plates which facilitated necessary retouching. The K3 filter is used by the lithographer for the black printer to give additional tone and depth to the reproduction process.

These negatives were developed in DK-50 with a dilution of 1:1. The green filter negative in all cases was masked with a light positive made from a red filter negative. These masks were made on Eastman 33 plates. All steps in making original separations and in making masks were densitometrically controlled.

2) As practically all reproduction processes are not continuous tone in nature but are able only to reproduce a solid color, the only way that subtle tints and shades can be reproduced is by making screen positives from the continuous tone negatives. In this way the varying tints consist of dots of solids varying in size; the smaller the dots, the finer the tints. In this step of the print production a screen positive was made from the continuous tone negative by interposing an optical device, the halftone screen, between the negative and the sensitive material. This screen, with its criss-cross lines, is used in photomechanical work to insure an effective reproduction of photographic continuous tone. While better grade reproduction processing calls for 120 to 133 screen lines to the inch, this Western print series was

"Her Majesty's Boots" *Corbin Kohn, West Hartford, Conn.*

1940 Pittsburgh Salon

raised to a 200-line screen, which can only be used in the finest printing technique. Such a fine screen process is governed by the quality of the paper stock and the presswork, which must be of highest standard for satisfactory results.

3) After the halftone positives are made they are printed on large zinc press plates, size 44 x 56 inches and light sensitized with a special chemical coating. These plates are then developed and deep-etched before being made ready for the press.

4) The final zinc lithographic printing plates were made 15 pictures upon a single plate ready for impression on white, special finish, offset paper stock, size 35 x 45 inches. This meant four separate plates holding 15 prints each, to produce the four-color process prints. The Standard Oil prints were run on the latest model two-color lithographic presses, which meant that two plates were made ready for each single press run. Running two colors at the same time, these giant presses turned out 4,000 sheets hourly. Thus, the first press ran the yellow and blue plates in combination and the second press carried the final impressions of red and black to complete the prints. This means that, with two presses running the prints, approximately 4,000 finished sheets, or 60,000 prints, could be reproduced hourly, not allowing, of course, for check-up of color register, drying and other presswork factors. Completing the lithographic process of natural color photographic reproduction, a sheet twice through one of these presses becomes a completed four-color reproduction of the original transparencies.

In the final analysis, the Western Scenic Art Print series has already launched a tremendous volume of interest in natural color photography, and the widespread demand for the pictures by the motoring public has already contributed in large measure to the assured success of the Standard Oil campaign.

Color photographers everywhere are also viewing this print series with new enthusiasm, as it is proving to be a spearhead in the campaign to develop public interest in natural color photography. And, once again, it may be said that the West has pioneered in carrying natural color work to a new peak, thereby paving the way for progress in color photography as well as in the travel industry.

Portraiture: Surface and Substance

William Mortensen

IN the field of portraiture, in all times and all media, there is an evident persistence of two ideas. There is one kind of portraiture that attracts us at once by its flashy and sensational statement of external qualities. The second type does not catch the eye so immediately: it goes more slowly and looks more deeply. The second sort is concerned with externals also (since any intelligible portrait must be good representation), but it is concerned with them only as they are related to more personal or spiritual qualities. The first type, no matter how it is presented, is principally concerned with setting forth the current erotic ideal, male or female. Representative of the first class in the field of painting are such fashionable painters as Sargent and Zuloaga. Rembrandt is the archetype of the second sort of portraiture: here also we may class such moderns as Brockhurst and Chapin.

As to which is the "best" of these two types of portraiture, depends entirely upon the *reason* for the portrait. If it is to be merely a souvenir of a certain year or a certain dress, or just a fashionable gesture towards keeping up with the Joneses, the external, superficial type is certainly the appropriate kind. But it is by no means the most satisfying kind. It makes its first effect—and then has no more to add. Like some sorts of conversation, it first amuses or even amazes you, then bores you, and eventually drives you to distraction. The other kind of portraiture may not please you at first, though you are sure that it is solid and sincere. But it has something interesting to say each time you look at it, and it continues to

be looked at long after the more superficial performance has gone into the ashcan.

It is the peculiar fate of photography that it is very facile in the representation of flashy externals. At a rough estimate, it takes *a thousand* times as long to paint a portrait as it does to arrange a subject and snap the shutter. Under these conditions, even a superficial painter would be apt to get a fuller idea of his subject than would the most careful photographer. It is certainly significant that the first efforts in photographic portraiture were in no way of a flashy sort. Thanks to the limitations imposed by the early processes—Daguerrotype, Calotype, wet collodion—photography of those days was a relatively slow and deliberate procedure. The works of D. O. Hill, of Cameron, and even of the strolling daguerrotypist, were sometimes a little stodgy, but always solid and sincere. The tintype of great grandfather has much more to say to us today than all the publicity stills of Rudolph Valentino.

Every period has its own popular ideal of beauty. In the early nineteen hundreds, its was summed up in the rather austere person of the Gibson Girl. The untidy little animal known as the "flapper" was the end of men's desire in the years after the last War. And, in the early Renaissance, to plunge further into the past, the ideal was evidently something slightly *enciente.*

Nowadays, a word and idea very much in the popular vocabulary and consciousness is "glamour." The term has come to connote an urbane and sophisticated ideal of feminine beauty that stands above and aloof from the common concerns of life. It is the world of the theatre and "show business" that is most indissolubly associated with the idea of "glamour." Latterly, Hollywood has become the glamour center of the universe.

The current glamour ideal in numerous slight variations takes up much space in our screen entertainment. It is also thrust upon us in the tens of thousands of "stills" outside our movie palaces and is forced into the service of Cadillac and Realsilk in the pages of *Satevepost.* And enlarged to the size of a barn door, glamour takes to the billboards to plead the cause of Chesterfield and Standard Oil.

We shall not here attempt any solution of the relative precedence of the hen or the egg—whether the pictorial ideal represents the sublimation of the popular notion, or whether the popular ideal conforms to an artificially concocted standard. But it is certainly true that, with all this emphasis, "glamour" inevitably becomes the ideal for photographic portraiture, both professional and amateur. The professional is expected as a matter of course to make all his subjects look like Ann Sheridan or a reasonable facsimile. The amateur tries to conform also, but with even less success. In Figures 1, 2, and 3 we see a few examples of ill-advised effort to emulate the contemporary glamour ideal. These all show sedulous study of the current formula for pulchritude, but fail notably to click.

It is characteristic of most all amateur attempts that they seize on only some single phase of the formula. Figure 1, for example, might be regarded as an effort to attain "glamour by light." The maker has noted that such competent purveyors of glamour as George Hurrell (let us say)

"Jan" *F. F. Lockwood**

Figure 5

*Mr. Lockwood is an instructor at the Mortensen School of Photography.

Figure 1.
Attempted "glamour by light."

use a contrasty side lighting, producing a splashy pattern of cast shadows and broken up light areas. So our enterprising amateur marshals his meagre lighting equipment and tries to do the same thing. The lighting effect, such as it is, serves only to emphasize the inadequacy of everything else.

In Figure 2 is seen another imitative attempt at glamour. A different phase of the formula receives attention here, resulting in an effort at "glamour by pose." The amateur reasons that the pose must be good for so many people have used it. Yet the whole thing is an obvious failure, even when helped out by a carefully imitated make-up.

Another sort of one-sided emulation of the current ideal leads to "glamour by clothes" (Figure 3). Although the elaborately nonchalant negligee reveals and conceals just as much as the latest release of movie stills, the effect is not the same—definitely not the same. Figure 4 shows an even extremer instance of the effort to achieve glamour by clothes. This picture is of particularly poignant interest to the author, for it is a bona fide example of his juvenile work. At the time of shooting, some twenty years ago, he was convinced it was very hot stuff.

All such efforts are fore-doomed to failure, for glamour—even the current version of it—demands something more than a formula, applied in full or in part. Strangely enough, although "glamour" is so sophisticated

Figure 2.

Attempted "glamour by pose."

and urbane in its manner, its origins, when we trace them, lead right back to the farm and small town. The great minds that contribute to our cultures, it is true, stem largely from the cities; but for strength and substance and "glamour" they must repeatedly return to the soil.

So the "glamour girls" of other years who have brought joy and a freshened appreciation of beauty to effete city dwellers have almost always been country girls or *petite bourgeois*—the little milliner, Du Barry; Madame de Maintenon, the goose girl who became the uncrowned queen of France; Nell Gwynn, "pretty, witty Nell," the orange vendor who was loved by King and populace alike.

Today the old rule still holds good. Again and again the producers and those who traffic in glamour go back to the substantial product of the soil. The glamour girls of today are the large percentage of them country girls. It is rather the habit of city folks to sneer at the corn-fed beauties and bucolic contest winners that come to Hollywood in droves; but the corn country and the cow country continue to be the never failing sources of glamour. It is not for nothing that Billy Rose goes to Texas once a year to replenish his stock of girls for the next season.

Needless to say, the raw product that comes off the ranges has to undergo a considerable period of grooming and shaping up before it becomes the ineffable symbol of "glamour." Obviously, the *coutourier*, the

Figure 3.

Attempted "glamour by clothes."

hairdresser and the cosmetician play important parts during this period. Another who contributes in large measure is the photographer; for it is through the medium of photography that the glamour is most frequently presented to the public nowadays. The disillusioned eye of the camera clearly points out the flaws and shortcomings of the raw product, but the experienced photographer is able to correct them and realize their hidden potentialities.

But—and this is the important fact to note at this point—all the efforts of the hairdresser, of the costume department, of the make up man and the photographer, count for nothing unless the candidate has something solid for them to work on. Ample testimony to this fact is supplied in the numerous notorious failures of Hollywood publicity experts to stir up a synthetic excitement and cast a phoney glamour over arbitrarily chosen candidates. Those who become "glamour girls" (to use the current term) do not as a rule have astounding beauty: rather, they convey an impression of good health, of soundly structured flesh and bone, of a fundamental and earthy sincerity. This health, structure and sincerity are the essential basis of all the superficial details of glamour.

In this fact lies the soundest possible approach to portraiture: *We must learn to disregard the outward trappings of glamour—all the superimposed fashions in lighting, pose, dress, make up, and so on—and seek the flesh and blood structural basis on which these things are applied.* In getting down to fundamentals, in seeking the earthy streak in all that

Figure 4.
Glamour, 1920 model.

pass before our cameras, we will be laying the basis for a type of portraiture all too seldom found in any medium, particularly in photography.

Figure 5 hints at what may be done. Here is the least possible concern with any of the glamourizing details of lighting, make up, pose, and dress that mark Figures 1 to 4. Yet it is unquestionably a much more satisfying piece of work than any of these, and even—in its way—more "glamorous."

Children are notoriously difficult subjects from a technical standpoint. Yet most photographers find that children bring them the highest yield of permanently satisfying portraits. This is because the child is still largely animal, lives close to the earth, and is uncompromisingly itself. There is not with it any veneer to pierce, or any sophisticated *décor* to strip off, in order to get down to fundamentals. Needless to say, I am here talking about the normal healthy child, not the type debauched by predatory mammas into diminutive trollops and juvenile gigolos.

It should be clearly understood that the sort of sincerity that I am asking for is not to be realized in mere photographic purity. The quality of the soul is not revealed by the texture of the epidermis. *Purism in portraiture is in its own way just as superficial as the most theatrical bit of "glamour."* Such a piece of work as Figure 5, for example, is without doubt a much more sincere and revealing portrait than could possibly be attained by a mere pure record of the same subject.

In the following installment we will consider in some detail the method and procedure demanded by this type of portraiture.

Man Made Rhythm

Rex McDowell, A. R. P. S.

FORTUNATELY for the photographer, man is like King Midas and his golden touch. Everything he lays his hand on gets rhythm. He builds a railroad and the sun throws sharp shadows of relief alongside the rails and ties—in crisp parallel and intersecting patterns. He builds a house and the naked rafters stand out in rhythm against the clouds and sky. He builds a huge metal standpipe and its rivets swing around the tank in long, sweeping arcs.

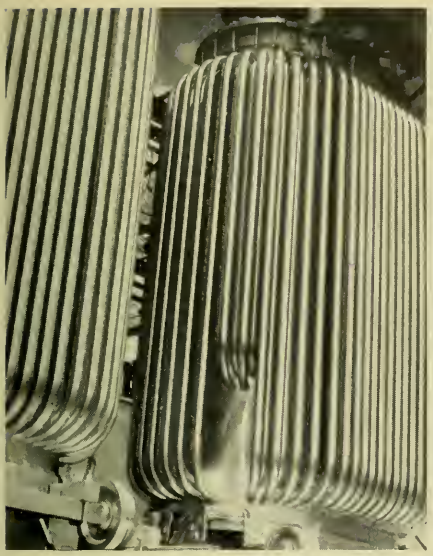
"Rhythm" and the "variety of forms and spaces" occur abundantly in nature, but in trying to corral them on your ground glass, you may come to the conclusion that they are almost as abstract as the words. Man, however, creates his patterns exactly from blueprints and furnishes us with precision designs, definite enough to be recognized by all.

When engineers and contractors assemble materials, the results must satisfy rigid standards. Buildings are perpendicular, rails are parallel, and rivets are equal distances apart. The photographer must keep this in mind and make an honest woman of his craft. This, bluntly, is photography with its back hair down.

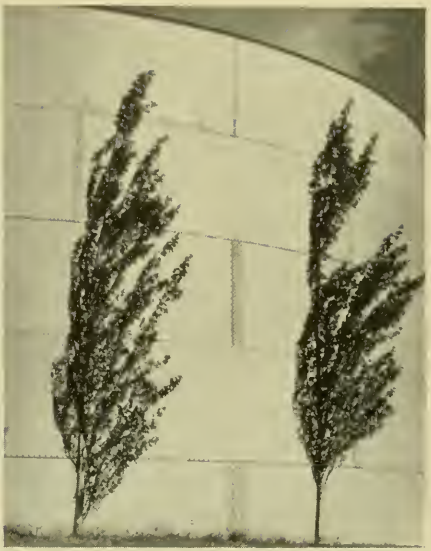
For the time being, the haunting, ephemeral type of pictorialism is on the doorstep and we must make use of 99.44% of the camera's ability to tell the truth. Photography may or may not be art, but here is one line along which the camera has the brush whipped to a standstill.

As you might expect, paper negatives, bromoil, and even rough matt papers are out, for they are not in keeping with our subject matter. They create the wrong mood in this particular instance or, as William Mortensen ably terms it, are in faulty empathy—meaning you are unable to properly "feel-into" the picture. The processing, as well as choice of paper, must be of a type to further the straightforward treatment we desire. For this reason all negatives and prints shown were made in D-72, a vigorous developer but one giving a fine scale of tones with plenty of shadow detail. The D-72 was diluted 1:2 for the Defender X-F Ortho film and 1:3 for the Velour Black paper used on these shots. Naturally, D-72 won't do for the 35mm. fans, due to its relative graininess.

If you are a minicam user, remember that fine-grain development means *controlled* under-development. Unless exposure is ample, cutting



"Transformers" *Rex McDowell*



"Reservoirs" *Rex McDowell*

"Ties for the Erie" *Rex McDowell*

"Looking for a Shot" *Rex McDowell*

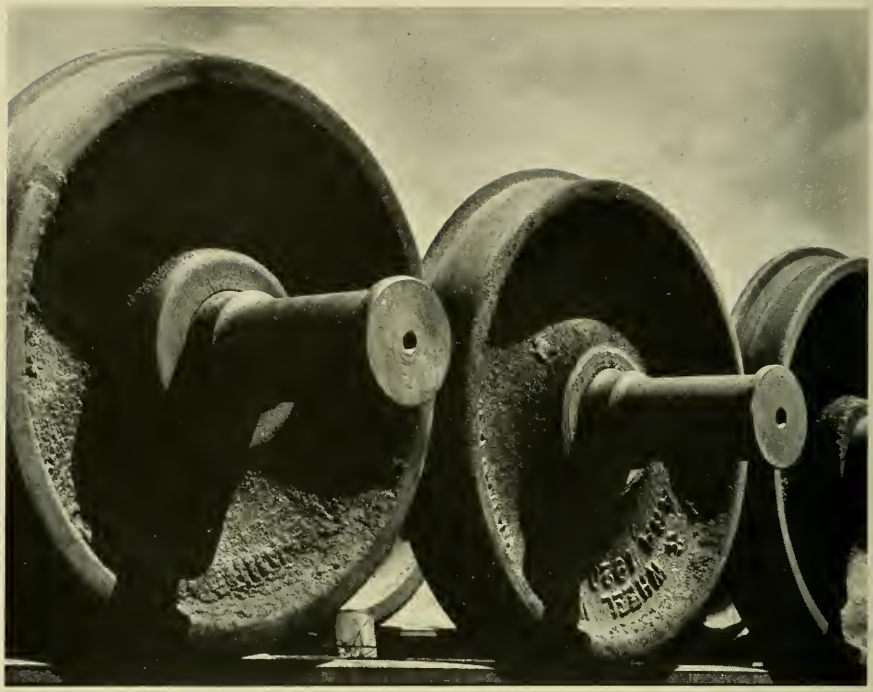
down the size of the silver grain may mean chipping definition out of your shadows or sparkle from your highlights.

Please don't misunderstand all this as purist propaganda. There is no reason why the picture shouldn't be cropped in the enlarging process, for how many can shoot a perfect composition using the exact negative area right up to the edges? Also, why not print in clouds or dodge a dark area if it helps the picture proper? Suppose your subject is in one plane but behind it lies distracting material better left slightly out of focus. Would you stop down to F:64 in this case? Of course not.

When shooting patterns, the very natural tendency is to go hog-wild and forget everything but symmetry, to fill the entire picture area with repeated images and nothing else. Naturally, a print of this type has all the chance for continued success that an 11″x14″ piece of wallpaper might. With boresome repetition threatening, the following dodges were used to afford a focal point of interest—to stop the eye from running in and right on out of the picture.

In "Transformers," a definite S-shaped element hooking the upper-right corner to the lower-left was introduced to break up the monotony of the vertical tubes. The S-shaped brands on the ends of two ties only in "Ties for the Erie" served to keep the looker's attention from roaming aimlessly over the print. Imagine the picture "Looking for a Shot," without the figure by the railing. In addition, "Pause That Refreshes" shows the use of pattern as a background for human interest. As such repetition of images

"Pause That Refreshes" *Rex McDowell*



"On the Siding" *Rex McDowell*

can be very forceful; it is up to the photographer to choose whether the model or the rhythmical background gets the greatest play for attention. Differences between the two can be accentuated by relative size, sharpness, and lighting intensity or contrast. Thus while the picture "Reservoir" is sharp, has a nice rivet pattern, and even shows texture in the aluminum paint, it lacks punch. A small boy near one of the trees, staring up in awe at the great tank, would have done a world of good. Don't sell human interest short, no matter what type of picture you're making.

Such tanks, grain elevators, and electrical devices will often be found painted aluminum. You can treat them just as white sails on a boat, so use a G or even an A filter and the object you have chosen will show up nicely against a bit darker sky than is normally needed.

The whole field lends itself admirably to a rather "modern" school of treatment, as the dramatic angle approach can often be utilized. By shooting from a low viewpoint, you can make your subject assume a looming importance, an impressive quality. In fact, several of the pictures shown were made with the Graflex camera sitting right on the ground. A reflex outfit, of course, is the ideal tool for such practice. The photographer with a miniature or double-extension plate type would have to stand on his head to compose and focus from this level.

In "On the Siding," the camera rested on one rail of a main track and was held at the right angle by chunks of coal found along the line. If you try this on some railroad, remember that looking into the hood of a reflex is a very engrossing occupation and one must also keep one's ears open. En-

gaged in focusing or waiting for that group of clouds to blow into the right spot, you may find a locomotive has sneaked up surprisingly close, thus endangering the camera and yourself.

"Pause That Refreshes," which is a self-portrait, employed the same technique. The photographer and model was stretched out on his back in a cow pasture, bordered by the fence in the picture. The Graflex again was on the ground, with the shutter release just within fingertip reach and was propped up by flat stones gathered from a nearby creek.

This does not mean that you must make super worm's eye shots that distort the subject out of all recognition. Such treatment is not only bad taste but its attraction is fleeting at best. Suppose you have a building or similar object on the groundglass and, since the camera has no rising front with which to bring the perspective to heel, your subject has an acute case of converging lines. Try composing so that one side of the object is parallel to the edge of the future negative and the other side is off the picture area. This method was used in "Transformers," because it successfully mixes fact and dramatic illusion.

You will find that the clean pattern and symmetry of your finished print leaves a good taste in the mouth. Even the salon judges will look at your masterpiece and be struck by a subconscious feeling that "God is in His heaven; all's right with the world"—we hope.

Kodachrome Exposure With the Microscope

George H. Needham, F. R. M. S.

A Systematic Procedure Of Determining Exposure For Kodachrome Professional Film, Type B; With Exposure Data for 35 mm. Kodachrome, Type A.

WITH the present perfection of Kodachrome sheet film, the many users of the microscope have a superb medium not only to reproduce objects of their choice in color with a fidelity and brilliance heretofore unobtainable, but also a natural color process which retains fine detail. Due to these advantages, Kodachrome has greatly broadened

the field of photomicrography, many subjects which are either not suitable or are disappointing in monochrome are ideal for this new medium. One of the most important and fascinating of these new fields, include rock sections, mineral and chemical crystals, and many specimens found in nature, as seen under polarized light. Under these conditions the coloring is unbelievably beautiful. Another great field for Kodachrome is stained botanical and histological sections. For these reasons Kodachrome will render great value in visual education with the microscope and in scientific recording of research, as well as open up a wonderful new field for the amateur microscopist and photographer.

Little pertinent information on Kodachrome exposure for the microscope is to be found in the literature, and as correct exposure is the most important factor in successful work, the purpose of this article is to give the interested readers of CAMERA CRAFT the benefit of the writer's experience of the last year and a half in applying cut film Kodachrome to many types of objects met with in microscopy. Before any Kodachrome exposures were made, much time was spent in choosing a standard plate for trial black and white exposures, the best type of developer for the adopted plate, judging the test negative critically for correct exposure and formulating a trial factor to apply to the monochrome exposure times for the first three Kodachrome films sent in for processing. So thoroughly was this preliminary work done that only minor modifications were necessary in subsequent Kodachrome exposures, these being dependent upon the nature of the object being photographed.

Importance Of Being Able To Take A Good Black And White Photomicrograph

One cannot expect to be able to get good results with Kodachrome until regular photomicrographic technique has been fairly well mastered. The author's series of articles in CAMERA CRAFT for February and November, 1934, October, 1935, and July, 1936, will repay careful reading for developing a systematic procedure for monochrome and then Kodachrome photomicrography. Unless work is done systematically with a permanent record of all factors involved, duplicate set-ups required when the first Kodachrome made of a particular object is incorrectly exposed cannot be made with certainty. Three-inch by five-inch ruled filing cards are excellent to record all data (such as that given in the tabulation towards the end of this article) as they may be filed alphabetically according to subject for handy and quick reference.

Type Of Camera

Any simple type of camera with a 5″ x 7″ or smaller back with some means of rigidly clamping same above or in front of the horizontal microscope is satisfactory for Kodachrome. A fixed, 10″ bellows may be used, although an adjustable bellows from 8″ to at least 20″ is very convenient. Interchangeable ground glass and clear glass holders are indispensable, the ground surface and the cross-line clear surface being used nearest the microscope and in the same plane as the sensitized surface of the Koda-

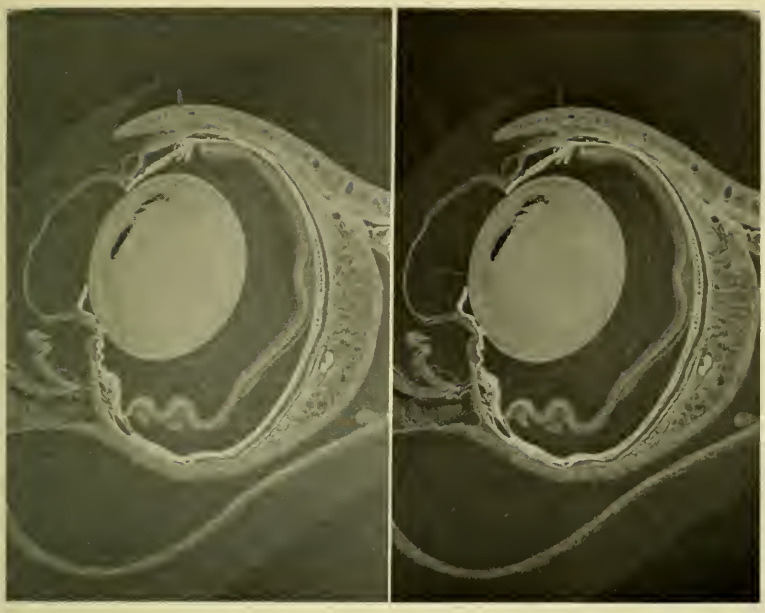


Figure 1. Black and White test exposure. "Eye of Frog," Transverse Section, Triple Stained. 8x. On left 1/25th sec., on right 1/10th sec. (preferred). Kodachrome—1/5 sec.

chrome film. To ensure maximum sharpness, so essential in both monochrome and color photomicrography, a 3x or 6x focusing glass is absolutely necessary in order to critically focus the fine detail of the object so that it is in the plane of the film. The front of the camera is fitted with a shutter for time and instantaneous exposures and a light-tight connection between the camera and the microscope.

Microscope And Optics

Any modern microscope of the medical or better type will be sufficiently rigid and be furnished with optics sufficiently well corrected to render very satisfactory results with Kodachrome. The better color corrected fluorite and apochromatic objectives are the finest lenses to use with Kodachrome, giving brilliant and sharp results. The 20x, N.A. 0.65, apochromat has been found especially useful.

Substage Condensers. The corrected achromatic condenser is very essential for accurate color rendition above the 10x achromatic objective, the aplanatic and Abbe chromatic (uncorrected) types being not nearly as desirable.

Light Sources

Two light sources have been used with the microscope for cut film Kodachrome, as follows:

1. *500 watt, 115 volt, T-20 clear Projection Mazda with Monoplane* tungsten filament. Color temperature 3190°K.

2. 6 volt, 18 ampere, ribbon or coil filament lamp. Color temperature of bulbs vary from 2850 to 2950°K. The author's coil filament bulb gave

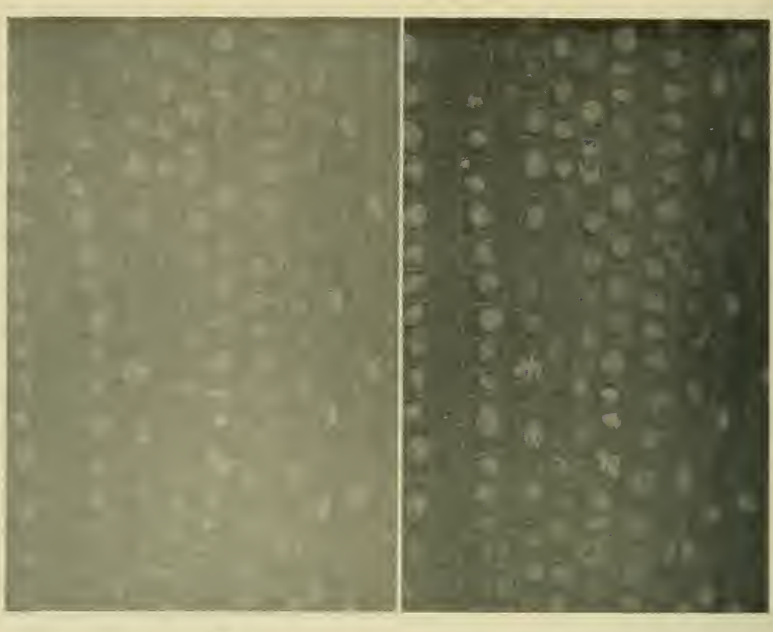


Figure 2. Black and White test exposure. "Cell Division in Onion Root Tip." Long. Section, Fleming's Triple Stain. 270x. 1 sec. on left, 3 secs. on right (preferred). Kodachrome 4½ secs.

an average reading of 2950°K. with Eastman's color temperature meter.

It is unfortunate for users of the microscope that Kodachrome film, Type B, is color balanced to commercial studio lighting with tungsten lamps at 3200°K. This means that correct color rendering can only be secured with the 500 watt projection Mazda given under (1) above, a light source which is not suitable for the best work in photomicrography on account of the narrow diameter and wide spread of the filament. The large size of the bulb and the large amount of heat output also makes it impractical to use in the small housing of the usually used microscope lamp. Of course, those workers having a 3¼" x 4" lantern slide projector fitted with this 500 watt bulb can easily adapt the projector to the microscope and camera set-up. As a precautionary measure, a 1¼" to 2" thick water cell should be used between the projector and the microscope to absorb most of the heat rays which might otherwise damage the microscope lenses or the specimen. In order to prevent air bubbles from forming on the sides of the cell, the distilled water used should be boiled for half an hour in an open beaker to dispel the dissolved air.

Focusing the Filament of the 500 watt Projection Mazda. First check to see that the Monoplane filament is set parallel to the condensing lens, then rack this lamp condenser back and forth until an enlarged image of the filaments is focused on the diaphragm of the substage condenser of the microscope. Experimentally move the lamp closer or farther way from the microscope until at least four of the vertical filaments are entering the back lens of the substage condenser, re-focus the filaments until they are sharp

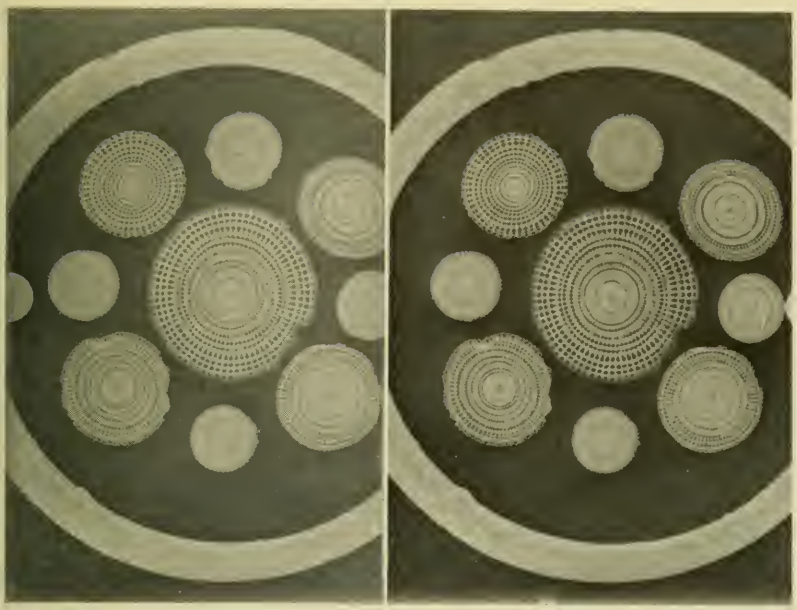


Figure 3. Black and White test exposure. "Sea Urchin Spines from Bermuda." Ground Transverse Sections. 5.5x. On left 1/25th sec., on right 1/10th sec. (preferred). Kodachrome 1/10th sec.

on the condenser diaphragm and make any slight lamp adjustments to make the filaments centered to the substage diaphragm. In order to secure even illumination a piece of ground glass is inserted in the light beam as close as possible to the Mazda bulb. The distance from the front of the lamp to the substage diaphragm (or to the mirror in case a vertical camera set-up is used) should be recorded for future reference. This modified Kohler illumination has given satisfactory results with Kodachrome at low and medium magnifications. Excellent results at 20x on the film have been secured without the use of ground glass by moving the condensing lens of the lamp until the filaments are sufficiently out of focus to fill the substage diaphragm area with fairly even light, a white card being used at the substage opening to facilitate this adjustment. An even field 10 mm. in diameter on the slide has been secured by this method and Kodachrome set-ups have been duplicated, although it is not as easy to standardize as the first method with ground glass.

Faithful color rendition has been secured with the above 500 watt Projection Mazda on objects photographed by transmitted and polarized light. Colors possessing a very strong chroma* such as those given by chemical crystals and rock sections examined with polarized light are reproduced by Kodachrome with high brilliance and purity. Violet, purple, blue and yellow, the difficult hues to secure with previous color processes,

*Chroma refers to the intensity and purity of a color. The more intense and pure the color, the higher or stronger the chroma.

are rendered exceptionally well, while the red and green shades leave little to be desired. These results were obtained without any voltage control or checking of the light source with a color temperature meter. According to W. E. Forsythe a line fluctuation of ±5 volts from the rated voltage of the lamp being used raises or lowers the color temperature about 50°K and within these limits the color rendition of Kodachrome is not noticeably affected. As the line voltage may at times vary beyond these limits, control by means of a voltage regulator or by means of the Eastman color temperature meter (using one of the special filters supplied to balance any slight variations from 3200°K) is necessary for serious work where sureness and future duplication of results are essential.

While the 6 volt, 18 ampere, ribbon (and coil) filament lamp gave fairly satisfactory results, the lower color temperature, of course, affected to some extent the color balance of Kodachrome cut film, Type B. As a general rule, in correctly exposed film, the reds were too light (overexposed) and the blues too dark (underexposed). This effect is being further investigated and studied. Experiments and trial exposures with a number of standard blue filters will be made with the ribbon filament lamp in order to make this excellent light source of greater value for Kodachrome.

The 3200°K special Mazda bulb for Type B Kodachrome was not tried with the microscope, for while it is a cheaper light source than the 500 watt projection Mazda previously described, it has the disadvantage of a short life of 10 hours (being of the Photoflood type), hence, darkening after about 5 hours of use and seriously affecting exposure times.

Plate Or Film To Use For Trial Exposures In Black And White

Three factors limit the choice of sensitive materials which might be used for trial exposures:

1. The Weston speed rating should be fairly close to that of Kodachrome, Type B.
2. The plate or film should be a Panchromatic one suitable for recording stained and colored microscopic objects in monochrome.
3. As the writer and the great majority of photomicrographers use Eastman plates or films for recording their scientific work, it was felt that the material chosen should be of this make.

Upon considering the above factors and the writer's own photomicrographic experience with various negative materials, it was decided to use the Wratten & Wainwright panchromatic plate, size 3¼″ x 4¼″, taking two trial exposures on each half of the plate. This material has a Weston rating to tungsten lighting of 8 (Kodachrome, Type B, has a rating of 6).

For those who prefer film for all photomicrographic work, Eastman Commercial Panchromatic is recommended. As this film has a Weston rating of 16 to tungsten, all exposure factors given later in this article should be multiplied by two. Please note that this refers to the factor by which the test exposure on Com'l Pan should be multiplied to arrive at the Kodachrome exposure. As this recommendation is based on calculation from the W. & W. panchromatic plate speed and not from direct trial

exposures, should the x2 factor be used, take *one* Kodachrome and pay Eastman 50c for processing it. Then compare the color transparency critically with the object and make any necessary corrections in the black and white exposure factor before exposing the others. The following may be used as a guide:

1. *If all the colors are light*, giving a flat appearance to the transparency (with chemical crystals and rock sections illuminated with polarized light the positive will have a pastel effect), the Kodachrome has been overexposed—give *half the exposure.*

2. *If all the colors are dark*, in some cases *more brilliant* than the original object, the transparency appearing somewhat dark when projected, the Kodachrome has been underexposed—give *double the exposure.*

Developing The Black and White Test Exposures

The following glycin developer, used with fine success for Finlay color process negatives for a number of years, was found excellent for all trial exposures on W. & W. panchromatic plates and is recommended for either these plates or the Eastman commercial panchromatic film:

Distilled Water (about 125° F.)	15 oz.	450 cc.
Sodium Sulphite, (desiccated E. K. Co.)	275 grains	19 grams
Glycin	110 grains	7.5 grams
Potassium Carbonate (E. K. Co.)	1¼ oz.	37.5 grams

Dissolve the chemicals in the order given, adding the carbonate in small quantities.

For use take one part of stock solution to one part of distilled water.

Tray development—5 minutes at 65° F.

The above glycin developer keeps well and gives clear, soft negatives with excellent gradation.

Judging The Negative For Kodachrome Exposure

The two best ways to critically examine the negative for proper exposure are either to hold same several inches in front of a piece of opal glass illuminated from behind with a 40 watt Mazda bulb or in front of a well-illuminated white surface. The various colors should be represented in correct gradation in monochrome with no hues appearing as black. Three trial negatives, illustrating widely different types of objects, are reproduced here, (Figures 1, 2 and 3) the correctly exposed half being indicated in each case. It will be noted that the negatives are somewhat flat, the type which would be printed on No. 3 Azo.

The Most Economical Size of Cut Film Kodachrome

Dividing 3¼″ x 4¼″ Size in Half

Undoubtedly the most economical and widely useful size of Kodachrome for photomicrography is 2¼″ x 3¼″, as not only is this size adaptable to the standard lantern slide of 3¼″ x 4″ without waste, but it may be displayed in front of a light viewing box without the necessity of a magnifier. There has been some objections to the 2¼″ x 3¼″ size on account of the cost and as the majority of photomicrographic cameras are designed for 3¼″ x 4¼″ or larger plates, a simple method was used to take two

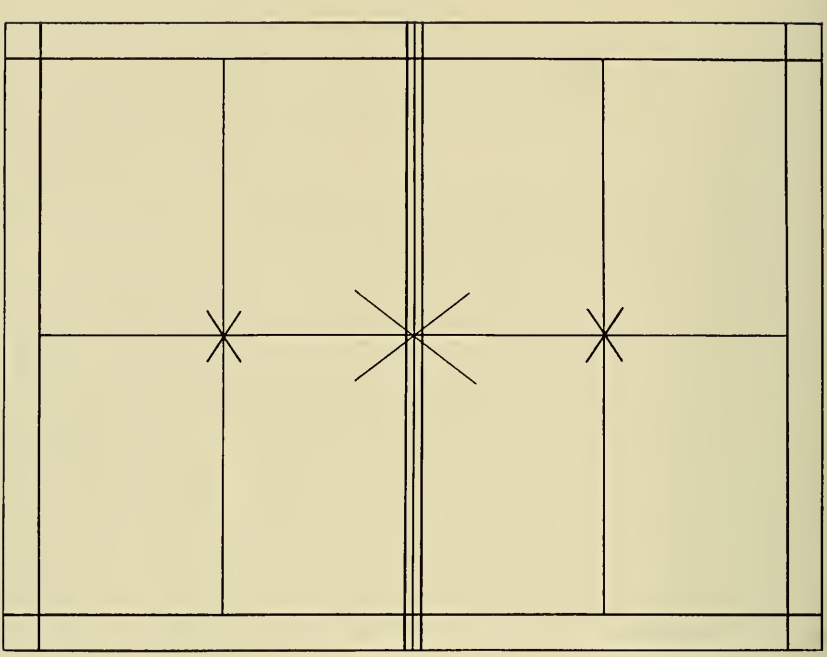


Figure 4. Ruled Ground Glass for Accurately taking Two Objects on One 3¼" x 4¼" Cut Film Kodachrome.

subjects on one 3¼" x 4¼" Kodachrome film. In order to do this, the camera should meet the following requirements:

1. Take a plate holder 4" x 5" or larger with reducing kits to take a 3¼" x 4¼" plate or cut film sheath.

2. Have some means of sliding and clamping the entire back at least two inches to the left and right of center. While this sliding back is not absolutely essential, a fixed back will allow only the left or right half of the microscope field to be photographed, thus making it more difficult to secure a flat field to the edge of the Kodachrome. Also such a sliding back is very useful for stereo and comparison photomicrography.

Two special dark slides are required to vertically divide the Kodachrome film in half and for the trial black and white exposures. Both may be made from the old style pressed board type of slide, as follows:

Half slide to cover the left half of the film. By first carefully marking the center of the 3¼" x 4¼" reducing kit while it is inserted in the plate holder, the amount to be cut off the dark slide can readily be determined.

Complete slide with 2⅛" x 3¼" opening cut out for exposure of the left half of the film. In the same way the position of the opening to be cut out may be found by measuring to the center line and by direct comparison

with the cut off half slide. The rectangular piece cut out should have the edges smoothed down and be used to insert in the center of the light-tight dark slide slot in order that the dark slide may be withdrawn, otherwise the central pressure of the spring will prevent complete withdrawal.

Less than a millimeter strip of Kodachrome will be lost, providing the above slides are carefully made and checked on a black and white before exposing the color film. While a 3¼" x 4¼" sliding plate holder could be built to the back of the camera with a central opening of 2⅛" x 3¼" and be more convenient, the above method is practical and much less costly. The ruled ground glass used by the author is shown in Fig. 4.

Calculated Exposure Time for 35 mm., Type A Kodachrome with a No. 1 Photoflood. By taking into consideration the changed factors involved when 35 mm. Kodachrome is used instead of Type B, cut film, an exposure time was derived for the miniature size which may be used as a guide for objects similar in nature to those tabulated in the tables which are given on pages 406 and 407. The changed factors considered were T-20 projection Mazda or 6 volt, 18 ampere filament lamp to 250 watt Photoflood, Weston rating of 6 to one of 12, and the greatly decreased magnification due to the 3" distance from the microscope eyepiece or the maximum distance of 9" from tessar to film if extension tubes are used. Such factors are given on the right hand side of the tabulation. In a future number of CAMERA CRAFT further and perhaps more precise exposure data for photomicrography with 35 mm. Kodachrome will be given in order to partially avoid at least the trial and error method of several step exposures of each object photographed.

Exposure Variation Due to the Nature of the Object. Upon studying the exposure factor given above to convert black and white time to Kodachrome cut film exposure time, it will be seen that as the brilliance and purity (or chroma) of the colors increase so does the exposure factor decrease. Consequently, the following tentative factors may be established:

Object	*Chroma*	*EXPOSURE FACTOR, Black and White to Cut Film Kodachrome, Type B*	
		W. & W. Pan. Plate From Experimental Exposures	*Eastman Com'l Pan Film From Calculation Weston Speed*
Large and thick stained sections	Moderate	x2	x4
Stained sections, blood and bacterial smears	Strong	x1½ to x1	x3 to x2
Minerals (Micro.), chemical and other micro. crystals with Rheinberg differential color illum., interference figures	Strong	x1½	x3
Rock sections, chemical crystals with polarized light	Very strong	x2/3 to x1	x1-1/3 to x2

Remarks And Conclusions From Above Exposure Data

Neutral Filters. These filters are quite valuable in Kodachrome photomicrography, as not only do they reduce glare and excessive contrast of

Exposures with Cut Film Kodachrome and Exposure Factors

Subject	Magnif.	Objective	Eyepiece	Substage Condenser	Illuminant	Filters	Exposure			35 mm. Type A Kodachrome With No. 1 Photoflood			
							W. & W. Pan.	Kodachrome	Factor	Magnif.	Film Dist.	Factor	Exposure
Stained Sections													
Eye of Frog T.S., triple stained.	8x	50 mm. Microplanar at f/6.3	None	50 mm. Spectacle lens	Ribbon filament 6 v., 18 a.	10% Neutral	1/10 sec.	1/5	x2	4x	8″	1/8	1/50 sec.
Mitosis, Onion Root, Fleming's triple stain	270x	20x Apochromat 0.65 N.A.	10x Comp.	Achromat no top lens 6 mm. diaphragm	Coil filament 6 v., 18 a.	10% Neutral	3 secs.	4½ secs.	x1½	60x	3″	1/40	1/10 sec.
Human Embryo, 58 day, Hematoxylin and Eosin stain.	3x	10.5 cm. Tessar at f/5.6 *reversed*	None	10.5 cm. Spectacle lens	Coil filament 6 v., 18 a.	Ground Glass and 50% Neutral	1/5 sec.	1/5 sec.	x1				
Stained Bacteria													
Typhoid with flagella. (*Dark field*)	800x	100x Fluorite N.A. 1.30	6x Periplan	"Cassegrain" 16 mm. stop	Coil filament 6 v., 18 a.	None	1 min.	1 min.	x1	200x	3″	1/30	2 sec.
Interference Colors													
Magnesium sulphate crystal, Biaxial fig.*		45x Achromat N.A. 0.85	5x Comp.	Achromat 16 mm. diaphragm	500 watt Projection Mazda	2 Polaroids and ground glass	5 secs.	8 secs.	x1½		3″	1/16	½ sec.
*(50 mm. Microplanar at end of draw-tube focused on back lens of objective).													
Diatom Actinocyclus in Hyrax.	160x	10x Achromat N.A. 0.25	15x	Abbe chromatic 2 mm. diaphragm	Coil filament 6 v., 18 a.	10% Neutral	½ sec.	1 sec.	x2	50x	3″	1/20	1/20 sec.

Exposures with Cut Film Kodachrome and Exposure Factors

Subject	Magnif.	Objective	Eyepiece	Substage Condenser	Illuminant	Filters	Exposure			35 mm. Type A Kodachrome With No. 1 Photoflood			
							W. & W. Pan.	Kodachrome	Factor	Magnif.	Film Dist.	Factor	Exposure
Crystals and Minerals Strontium Nitrate crystals—octahedral*	120x	10x Achromat N. A. 0.25	Holos. 7x	Abbe chromatic	Coil filament 6v., 18a.	10% Neutral and ground glass	8 secs.	12 secs.	x1½	25x	3″	1/50	1/5 sec.
(Rheinberg differential color illumination, six sector stop of the spectrum colors with 9 mm. diameter black stop in center. Placed below the substage condenser. Each face of crystal appears a different color).													
Fire Opal in Matrix from Australia.	7x	50 mm. Microplanar at f/6.3	None	None	Ribbon filament 1″ band focused on specimen	20% Neutral	3 secs.	5 secs.	x1½	4x	8″	1/8	½ sec.
Ground Sections Sea Urchin Spines from Bermuda.	5.5x	10.5 cm. Tessar at f/5.6 *reversed*	None	10.5 cm. Spectacle lens	500 watt Projection Mazda & condenser	Ground glass & 50% Neutral	1/10 sec.	1/10 sec.	x1				
POLARIZED LIGHT: Rock Sections and Crystals Mica Schist with Garnets from Loch Duish, Ross.*	14x	35 mm. Microsummar at f/4.5	None	35 mm. Spectacle lens	Coil filament at 18 a.	2 Polaroids, Selenite 10% Neutral	3 secs.	2 secs.	x2/3	6x	9″	1/10	1/5 sec.
(One Polaroid in substage and one over Microsummar. Yellow selenite over substage Polaroid and turned to give a gray field).													
Salicin, thin layer crystallized between slide and cover.*	18x	35 mm. Microsummar at f/4.5	None	35 mm. Spectacle lens	500 watt Projection T-20 Mazda & condenser	2 Polaroids, Selenite 3rd order green	1/5 secs.	1/5 secs.	x1	6x	9″	1/10	1/50 sec.
(Polaroids and selenite plate as given under Mica Schist with Garnets.)													

the colored objects, but also such filters tend to keep the exposure time within convenient limits. Therefore neutral filters would be almost a necessity with 35 mm. Kodachrome photomicrography. Only two are really needed—a light tint transmitting 50% of the light and a darker one transmitting 20% (or 25%), as the two may be used together to secure one-tenth the intensity of the light beam. Glass or gelatin neutral filters are reasonable in price and may be secured from Bausch & Lomb, Eastman, or Spencer Lens Company. A correction, of course, will have to be made in the above Kodachrome exposures in case no neutral filters are used in the set-up, dividing the exposure time by 2, 5 or 10.

A Brief Summary of Kodachrome Procedure

1. Make the photomicrographic set-up using either the Kohler method of illumination (enlarged image of the light source on the substage condenser diaphragm and image of the lamp diaphragm in the plane of the specimen) if the ribbon or coil filament lamp is used or the method described earlier in this article should the 500 watt, T-20, projection Mazda be used.

2. Should the half film Kodachrome method be adopted, center the required microscope field to the left half of the specially ruled ground glass (Fig. 4), doing the final focusing on a separate *clear* glass with a focusing magnifier.

3. Expose the left half of the trial plate or film. Then repeat (2) moving the field to the right half of the marked ground glass. Expose the right half of the plate to double or half the first exposure.

4. Without disturbing the photomicrographic set-up, develop the plate in glycin, 5 minutes at 65° F.

5. Examine critically for correct black and white exposure, calculate the Kodachrome exposure and expose the *right* half of the color film. (Be sure and mark the film holder in some way as to the side which has been exposed in order to avoid any double exposures).

6. Repeat (2) to (5) with another micro. object, planning the black and white exposures so that when the Kodachrome is taken the desired microscope field will be on the *left* side of the ground glass.

7. Send the exposed Kodachrome film to Rochester for processing (they do a first-class job which should satisfy the most critical workers) and compare the results with the original object and the black and white, making any slight corrections found necessary in exposure time for use with future Kodachrome work.

The writer wishes to acknowledge the help of Dudley Haskell in reading over this manuscript and for his valuable suggestions regarding the Munsell color system terminology adopted in this paper and for verifying certain statements made therein.

Mr. Needham will be glad to answer by letter the questions of serious students who are applying Kodachrome to the microscope. Address George H. Needham, 2006-10th Ave., San Francisco, Calif.—Ed.

Cinema Section

Edited by

William A. Palmer

Electric Motor Drives For 16 Millimeter Cameras

IN many types of cine work an electric motor drive for the camera is a very great convenience. It enables one to continue a scene indefinitely or to shoot scene after scene without a pause for winding the camera. This is particularly helpful when using the camera to photograph a number of scenes from a fixed camera position such as the picturing of a surgical operation, when the camera can be operated by remote control and need not be touched except to change rolls. For commercial work, an electric drive is almost a necessity because scenes are repeated many times and a constant winding of a spring motor is a nuisance.

There are two general types of motors which may be fitted to 16 millimeter cameras. The first is a "universal" or "series" motor which can be operated either on alternating or direct current, and the second type is the synchronous motor which must be operated on alternating current alone. The synchronous motor has its most common application when the pictures are taken in conjunction with sound recording, at which time the synchronous motor propels the camera at an exactly uniform speed in perfect time with the sound recording device. This type of motor also is the only one which should be used for a camera in surgical work inasmuch as the synchronous motor with a condenser starting device will cause no sparking which might be dangerous around ether fumes. The synchronous motor has the disadvantage of being able to operate at one speed only.

The motor with the more general application, particularly for amateur work, is the universal type. In fitting this type of motor to a 16 millimeter camera, one can choose a low voltage unit, usually for 12-volt power supply, or the more common line voltage motor for 110 volts. If the 12-volt motor is chosen, it may be supplied from storage batteries for portable service or through a transformer which will drop the 110-volt alternating current supply to the 12-volt potential. The 110-volt motor can be operated directly off of the alternating current lines, or for direct current operation may be powered by three ordinary 45-volt "B" batteries. We feel that the 110-volt style of motor is the most convenient, and therefore its application will be described more in detail.

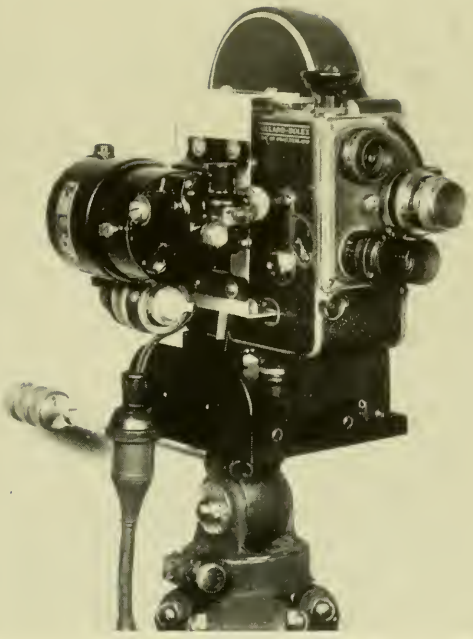
A motor drive can be most easily adapted to those cameras which are equipped with a hand crank. This brings a rotating shaft to the outside of the camera case and a convenient point to which the motor may be attached. Those cameras which are regularly equipped with a hand crank or which may be equipped at the purchaser's option, are the Bell & Howell 70 D, the Eastman Cine Special, the Victor, and the Bolex. The example illustrated here is the application of a motor drive to the Bolex camera. The principle, however, is applicable to the other makes with slight modifications which will be mentioned later. The general principle is that the electric motor supplies the motive force necessary, while the governor of the camera holds the speed to the required amount; in other words, the electric motor merely substitutes for the spring drive.

The motor used in this case is the Bodine Model V-10R (115 v., A.C.-D.C.) with gear reduction 18 to 1. It is held to the camera by a mount which slips into the socket at the top of the camera originally intended for the view finder. The mount is also held at the bottom by a small finger which is inserted in the slot alongside of the camera release button. This finger forces the release button to be held back in the "run" position so that while the motor is attached it is impossible to have the mechanism locked. A small rheostat (25 watts, 100 ohms) is connected in series with the motor to compensate for different voltages and insure that the motor gives enough power but not too much so as to cause strain on the camera governor.

These two safety features, the rheostat to decrease the driving force of the motor, and the finger to make it impossible for the camera mechanism to lock, are augmented by a third safety device which might be termed a mechanical fuse. This is made by having the shaft from the camera and the motor shaft coupled together by a simplified form of flexible coupling—a wrapping of scotch adhesive tape. Six or seven turns of this tape make a coupling strong enough to drive the camera under all normal conditions, but should a film jam occur and the camera mechanism stop, the coupling would slip before the force of the motor could do damage to the internal workings of the camera.

In operation, the speed control on the camera is set to the normal position for the speed desired. The camera is turned on and the rheostat is turned up until the camera no longer gains speed. The motor illustrated on the Bolex camera is capable of driving the camera from 8 frames a second to approximately 32 frames per second. It is impractical to have an electric motor without a gear-changing device or an elaborate slipping clutch, to drive the camera at all speeds from 8 frames per second to 64 frames per second.

This same motor can be adapted to a Victor camera and a similar motor can be adapted to an Eastman Cine Special if it is ordered to operate in the reverse direction. A standard motor with a gear box attached already has the correct rotation for the hand crank on a Bolex or a Victor, but for the Cine Special the operation must be the reverse; that is, the rotation of the slow speed motor shaft must be clockwise when looking at the shaft end. The same motor with standard rotation can also be applied to a Bell & Howell 70 D, but its gear ratio must be changed to 45 to 1 instead of 18 to 1, since the hand drive on the Bell & Howell camera has a different gearing. Incidentally, the gear ratio on the motor is not critical since the governor of the camera controls the speed and the motor applies a constant force.



Motor Mounted on Bolex Camera

With the motor described, the operation is usually from the alternating current supply when that is available, or if used away from current supply, is operated on radio "B" batteries. Three standard 45-volt batteries connected in series yielding 135 volts will run the camera for at least twenty rolls of film, or for even longer life, a "B" battery "pack" of heavy duty layerbilt batteries should easily take care of fifty to one hundred rolls. The "B" batteries, having a potential of 135 volts instead of the normal alternating voltage of 115 to 120 volts, require that the rheostat be turned to a lower setting for the same camera speed, so as to prevent excessive strain on the camera governor. You will notice that in the illustration the motor is mounted without any provision for reducing vibration except that the mount being made of thin metal has a slight amount of resiliency. Additional flexibility of mounting is not necessary because the motor, originally designed to operate at speeds as high as five thousand r.p.m., is only operating at twenty-five hundred to three thousand r.p.m. when driving the camera, and therefore has little or no vibration.

It is, of course, impossible to give complete directions for the mounting of such a motor on all makes of cameras, and if the camera owner does not feel capable of doing the job himself it should not be difficult to find a camera repair man or precision machinist who can do the job for him.

In the synchronous type of motor mentioned earlier, it is necessary to order the exact type of gear ratio for the type of camera desired. For in this case the motor controls the speed of the camera and the camera governor is not used

at all. Synchronous motors are usually designed with gear ratios to give exactly 24 frames per second, that being the standard sound recording speed. For scientific or medical work the sound speed is recommended, even though there is no immediate intention of adding sound to the film. It is more than likely that a film of any worth in this field will eventually need a sound accompaniment.

Shift-Over For Accurate Focusing and Alignment

THE shift-over base illustrated here will be of interest to some, although it is applicable to the Bolex camera only.* With the aid of this shift-over all guess work on focusing and accurate alignment is eliminated, for one is able to see just exactly what is going to be placed on the film, just as the still photographer with a view camera can line up his scene in his ground glass.

The device consists of two castings connected by a parallelogram mechanism to shift the camera to the left and downward when focusing. In this focusing position the full frame aperture with its ground glass is placed in the exact position which the film aperture will occupy while photographing, the lens to be used being shifted by turret to the proper position.

The diagram shows the camera in the two positions and you will notice that the taking lens remains fixed. This device completely eliminates any difficulty of parallax and makes it possible to see the exact field and focus of the scene on the ground glass of the focusing aperture. This device is only applicable to the Bolex camera in this form since the mechanical arrangement of any shift-over device must be designed accurately to compensate for the difference in positions between a focusing aperture and the taking aperture. Similar constructions could be made for other makes of cameras providing they are fitted with a focusing aperture which includes the full frame.

A similar device is available from the manufacturer for both the Bell & Howell Filmo 70 D and 8 millimeter cameras. It is called an alignment gauge and accomplishes a purpose similar to the shift-over illustrated here. The Filmo device for the 8 millimeter camera is more nearly like this Bolex one, whereas that for the 16 millimeter 70 D camera makes use of the Filmo finder plus a critical focusing device. The Cine Kodak Special also accomplishes a similar end result, but here an optical system is so arranged that an image from the

* Made by the C. R. Skinner Manufacturing Co., 290 Turk Street, San Francisco.

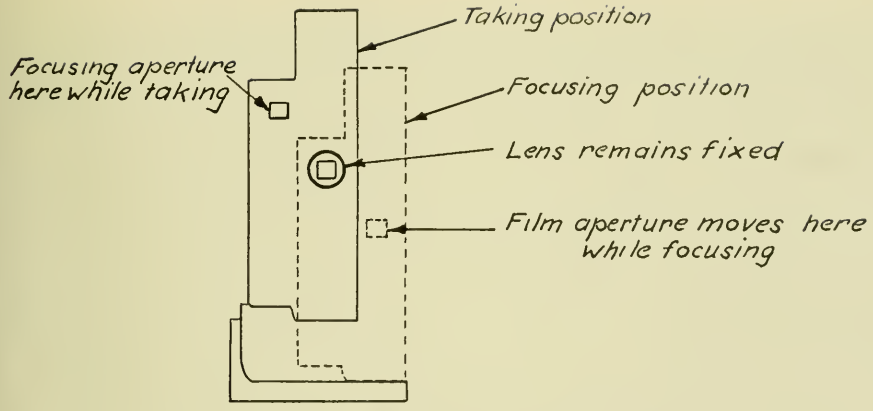


Diagram showing operation of shift-over

focusing lens is diverted to a focusing aperture without the camera itself being moved. Thus the field of a camera equipped with parallax free focusing and finding devices is becoming much broader.

There are two other cameras which can give absolutely parallax free alignment and they are the magazine models put out by both Eastman and Bell & Howell. In this case the entire film magazine is removed and a "dummy" magazine with a focusing aperture is put in its place.

Questions and Answers

Question: How many seconds should be given to a scene which does not have much action in it?

Answer: The average length of a scenic view or other shot in which there is little action should be around seven seconds. In no case should a scene be cut shorter than four seconds unless intended as a flash for special effect.

Question: What film stock has the proper sensitivity to be used with the built-in exposure chart on my Eastman camera?

Answer: The charts on the front of the older Eastman models are designed to be used with the discontinued "Regular Panchromatic" film. The newer Super X emulsion requires one stop smaller opening. There are three emulsions, however, which can use the chart without change: "Cine Kodak Safety" (plain yellow box), Agfa Plenachrome (orange box), and Agfa Panchromatic (orange box with blue and green). A new chart for any type of film can be attached by an Eastman dealer.

Question: Should one change the exposure under the same light conditions when moving from a medium shot to an extreme close-up of a person?

Answer: Yes. It is usually better to give a half stop more exposure on the extreme close-up than on a medium or long shot, because the face tones on the close-up are all-important and the shadows under the eyes should be luminous. In a long shot, if the exposure is heavy enough to cause luminous shadows, the rest of the scene may be slightly over-exposed.

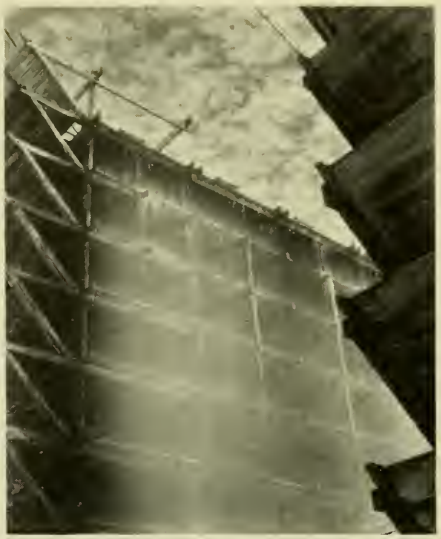
"!!*!!!!"* — *Ross A. Ross, San Francisco, Calif.*
First Award—Advanced Class

■ We happen to know that this is a planned shot, suggested by the qualities of the model. As such it shows several virtues which the student of photography might strive to keep in mind. To begin with, the model is able to fully live up to the conception. Perhaps the most frequent mistake which beginners make in the field of figure characterization is to call upon the model to suggest something entirely out of character. The millions of prints showing sister, age 15, with too much make-up and the title "Vampire," "Salome," or "Femme Fatale," show this type of error at its worst. Second, observe that the setting is kept as simple as possible. The novice fails to appreciate the power of well conceived suggestion. Therefore, he feels compelled to include a lot of things in his setting in order to satisfy himself that the observer will recognize the environment. This picture is a fine example of how simply the nature of a setting can be conveyed. And finally the model has been handled with restraint both as to pose and expression. There is no fist shaking here, nor is the face twisted into a horrible grimace. Such extravagance of pose and expression defeats its own purpose by making the model appear either ridiculous or theatrical. The wise artist uses all things sparingly and keeps in mind the fact that those who will enjoy his work have imaginations and find pleasure in using them. Incidentally, this is a fine example of good synchro-sunlight technique.

Data: 4 x 5 Speed Graphic; 6″ Zeiss Tessar; 1/200 sec. at F:8; by late afternoon sunlight and one No. 0 Superflash bulb; 11 x 14″ print on EK Kodabrom E-2.

Second Award

Advanced Class



"Cooling Towers" — *W. Ellis Teas, Pasadena, Calif.*

■ Mr. Teas has seen a very interesting pattern in this material and does a nice job of photographing it. The fine spray of the falling water plays against the texture and structure of the tower in fascinating fashion. The texture and structure are obscured and revealed in most intriguing manner, and this is probably the strongest factor in maintaining the interest value of the picture. The strong pattern of the picture is responsible for the original impact which gains attention. This is the quality which Mr. Mortensen has so aptly called "The Command to Look." Some may wonder whether or not it might be desirable to indicate scale in one way or another. It would be rather difficult to do this successfully. A figure would hardly be appropriate here since it would take away from the concentration of interest in the falling water and the factors which were mentioned above. Particularly it would not be desirable if the structure is really not of great size, for the feeling of size constitutes part of the picture's effectiveness. Admittedly there is always some danger of irritating the curious observer when scale is not indicated. However, when we need a suggestion of size which is greater or smaller than actuality, or when an indication of scale introduces an extraneous note (as the inclusion of a figure would here) it is best to do without it. In such case try to make your *suggestion* of size as convincing as possible and let it go at that.

Data: 16 x 20″ bromide print, partially sepia toned on Agfa Brovira Royal in D-72.

Third Award

Advanced Class

"The Porcelain Door Knob" — *Fred P. Willcox, San Francisco, Calif.*

■ We are often puzzled by the very widespread attitude which refuses to see anything more in a photograph of this kind than a bare statement of fact. For us, assuming the photographer knows what he is about and has done a good job of carrying through his conception, there is just as much "content" of whatever sort you like, in this kind of picture as in any other. The above attitude ignores many factors in the making or appreciation of such a picture which go well beyond mere statement of fact. We have space for only three: 1. The artist's original selection. 2. The pattern. 3. The play of the observer's imagination. If the photographer knows what he is about, he will select material which is interesting, that is, material which has something to say. This does not mean that the material must approach genre, contain romantic or sentimental suggestions or be beautiful in the more conventional sense of that term. There is an infinity of interesting material beyond these categories in spite of the tendency in some quarters to limit the scope of photography to such fields. Obviously the artist's selection also creates the pattern or composition, most certainly something considerably removed from bare fact. And finally, the artist has the right

(Continued on page 420)

"Abstraction in Refraction"
Wm. A. Garnett,
Pasadena, Calif.

Fourth Award

Advanced Class

■ By very clever use of lighting, Mr. Garnett has created a most intriguing pattern with very simple materials. The curving plant-like forms in the foreground are apparently pieces of metal, while the object above is quite obviously a gold fish bowl. The single light has been placed quite low and a little to the left of camera position so that it casts strong shadows from the curved metal but reaches the bowl without interruption. It was certainly wise to include the dark material along the base, for this is necessary to give proper support to the objects above. Without it the arrangement would appear very unstable in the picture space. We think that a simpler line would be better than the present sawtooth effect. This base line contrasts very strongly with the background, and this fact, combined with the active nature of the line, makes it a bit too prominent as things are.

Data: 4 x 5 View camera; EK Super XX film in DK-20; by one 500 watt spotlight; 11 x 14″ print on EK Kodabrom N.

"Navajo Madonna"
Harry H. Haworth,
Pasadena, Calif.

Fifth Award

Advanced Class

■ Strength of subject matter puts this picture across in spite of some rather unfortunate shortcomings of execution. The definition is poor throughout and this is particularly regrettable in the wooden pillar where good rendition of texture would be especially desirable. This rotting column could function beautifully as a symbol of the antiquity of the Navajo civilization, but as things are, its effectiveness in that respect is weakened by inadequate presentation. The patch of sky in the upper left corner is a rather bad error, especially so since it can be trimmed away without real injury to the arrangement. If one desires to restore the present print proportions, that could be accomplished by adding a bit more to the right. We could achieve somewhat improved spacing by trimming from the left as indicated and from the base until the light patch at the right edge of the print is eliminated. This, of course, removes the rotting stump of the pillar and consequently takes away that part of our story, but on balance we are inclined to feel that this second trimming is most desirable.

Data: 2¼ x 3¼ Voigtlander camera; F:4.5 Skopar lens; 16 x 20″ bromide print on Agfa Brovira Royal.

"Age Defiant" *Isadore Berger, Detroit, Mich.*

First Award—Amateur Class

■ Here is an extremely compelling face. Enigmatic and yet revealing—expressive and yet inscrutable. In short, a face which captures our imaginations and causes us to puzzle endlessly as to the thoughts, experiences, and emotions which lie behind this amazing countenance. For us there is more of anguish than defiance in this face, but that is of little moment for each observer will find something a little different here. The enigmatic quality of the expression is no disadvantage—it stimulates the imagination and by so doing, holds the observer's interest more completely than might otherwise be the case. For historical support we need only cite the classic example of the Mona Lisa. But all of this most emphatically does not mean that just any old expression is all right in a portrait. An ambiguous expression, for example, is quite a different thing from the quality which we admire in this picture, as are also the "dead pan" and otherwise meaningless expressions which are often found in portraits. And such expressions could be obtained with this face, in spite of its dramatic character, as readily as with any other. Regardless of the quality of the model, it is always up to the photographer to catch a suitable aspect of his subject. We feel that just a little more shadow detail below the chin would avoid a feeling of emptiness which is now apparent in this area, and it would be well to tone down the highlights on the lobe of the right ear, for these are now slightly more prominent than is desirable.

Data: 2¼ x 2¼ Rolleiflex with Zeiss Tessar; 1/100 sec. at F:11 on Panatomic X in D-76; by sunlight with yellow filter; 14 x 18″ bromide print.

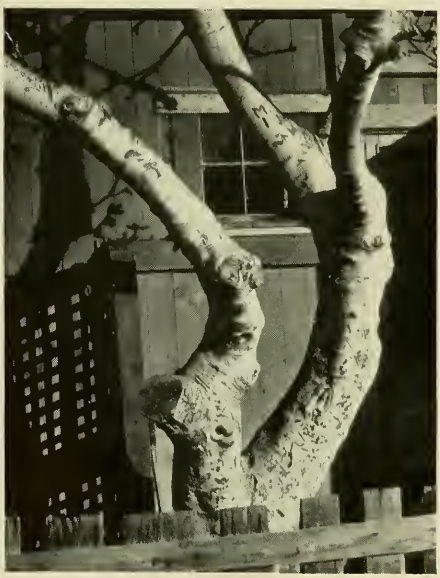
"Charlie"
Richard Wagner,
San Francisco, Calif.

Second Award

Amateur Class

■ When one wants a full face shot of a reclining cat the principal problem in the adjustment of the pose and camera angle has to do with the disposition of the hind quarters. If they remain in the picture we usually get a too violent perspective, a falling off of definition, or both, which look very bad in a picture. Mr. Wagner shows one good solution of that problem. Perhaps a slightly lower camera angle would help, by bringing the line of the back lower with respect to the head. It seems to us that this particular breed of cat, whatever it may be, is especially suited to photography because of the interesting pattern of the markings on the face.

Data: Graflex Series D; 6″ Zeiss Tessar; open and shut flash on Agfa Portrait Pan in DK-20; 11 x 14″ print on Gevaert Gevaluxe in mfg's formula.



"The Fig Tree"
Martha Homsy,
San Pedro, Calif.

Third Award

Amateur Class

■ Miss Homsy has taken a rather unusual tree form and heightened its interest value by relating it to and playing it against the building behind. Here is a subject which quite obviously demands good definition throughout. It is, therefore, unfortunate that the fence and the nearer parts of the tree begin to lose sharpness. Things would be better the other way around with the fence and the tree sharp and the background slightly out of focus if full depth of field were impossible. If the lens will not stop down enough for full depth of field at the distance which gives the desired image size on the negative, the situation can often be helped a bit by moving back and subsequently printing from a portion of the negative.

Data: 2¼ x 3¼ Graflex; 1/25 sec. at F:16 on Agfa Super Pan Press in D-76; 11 x 14″ print on Defender glossy in D-72.

Fourth Award

Amateur Class

"California Landscape"
Jack Cannon,
San Francisco, Calif.

■ Mr. Cannon has picked out a beautifully integrated bit of hillside here which is thoroughly typical of the California foothill country. The indolently curving forms of the hills present an interesting variety and are very nicely related to the farm buildings with the accompanying trees. Much of the charm of the picture is due to the harmonious quality which this fine relationship sets up, and notice that there is another sort of harmony here, harmony between the lazy curves of the hillside and the emotional qualities of the mood which suggests a warm, sleepy afternoon. The large expanse of sky helps to complete a feeling of the spaciousness of the out-of-doors. Admittedly the horizontal band of the foreground is a problem, both because of its shape and because of its light tone. Ideally, this should be darker and broken up with something such as a road or

(Continued on page 420)

Fifth Award

Amateur Class

Robert Vawter,
San Francisco, Calif.

■ We feel that the simplicity of the treatment here does much to impart a dignity to the picture, which in combination with the rather severe expression and the harsh lighting, make a rather forceful print. In most respects the lighting is quite good. The way in which the model's left eye is lost and found is particularly effective. The lighting about the mouth is not quite so happy for it has the effect of giving the mouth a tilt upward toward the right as we look at the picture. Mr. Vawter was wise in permitting his light to touch up a limited area on the breast, for by so doing, he has made use of the interesting texture and pattern of garment and necklace, both of which help to contribute to the atmosphere which he is seeking in this portrait. It seems to us that he has controlled the amount of light in this area quite nicely, using just enough to accomplish his purpose but not enough to build up the strength of this area unduly. The tone value of the background appears to be in very nice relation to the general tonal scheme of the picture. Notice the nice feeling of movement which is set up by the pathway of light which moves down the left side of the face and across to the lower right corner of the print, and then the general pathway of dark passages which moves down the right side of the face and swings over to the lower left corner. This linking together of general tonal areas helps greatly to set up a feeling of movement in the picture.

Data: 16 x 20″ bromide print.

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won prizes for their clubs in the Advanced Class: W. Ellis Teas, William A. Garnett and Harry H. Haworth, for the Pasadena "Y" Camera Club; and Fred P. Willcox, for the Aremac Camera Club.

The following won prizes for their clubs in the Amateur Class: Isadore Berger, for the Detroit Camera Club; Richard Wagner, for the Photographic Society of San Francisco; Martha Homsy, for the Camera Club of San Pedro; and Jack Cannon and Robert Vawter, for the California Camera Club.

The following prize winner has no club affiliation: Ross A. Ross.

CONTRIBUTING CLUBS

Aluminum Camera Club (New Kensington, Pa.)
Amherst Camera Club (Mass.)
Aremac Camera Club (San Francisco)
California Camera Club (San Francisco)
Camera Club of Oakland (Calif.)
Camera Club of Richmond (Va.)
Camera Club of San Pedro (Calif.)
Channel City Camera Club (Santa Barbara, Calif.)
Columbus Photographic Society (Ohio)
Crockett Photographic Society (Calif.)
Dallas Pictorialists (Texas)
Detroit Camera Club (Mich.)
E.P.I.C. Pool of San Francisco
Fort Dearborn Camera Club (Chicago)
Grays Harbor Camera Club (Aberdeen, Wash.)
Manhattan High School of Aviation Trades Camera Club (N. Y.)
Miniature Camera Club of New York
Modesto Camera Club (Calif.)
Modesto Junior College Camera Club (Calif.)
Olean Miniature Camera Club (N. Y.)
Pasadena "Y" Camera Club (Calif.)
Photographic Society of Philadelphia (Pa.)
Photographic Society of San Francisco
Pictorial Fellowship of Long Beach (Calif.)
Portland Camera Club (Maine)
Retlaw Camera Club (San Francisco)
San Francisco Junior League Camera Club
Sierra Camera Club (Sacramento, Calif.)
Sierra Madre Camera Club (Calif.)
Tropic Camera Club (Manila, P. I.)
Vancouver Photographic Society (Canada)
Wilson Dam Camera Club (Ala.)

STANDING OF CLUBS

Large Clubs Advanced Class

California Camera Club	5
Photographic Society of Philadelphia	5
Brooklyn Institute of Arts and Science	3
Manhattan Camera Club	3
Fotoklub Ljubljana	2

Small Clubs Advanced Class

Pasadena "Y" Camera Club	47
The Pack Rats	16
Signa Phi Nothing	9
E.P.I.C. Pool	5
Aremac Camera Club	4
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2

Large Clubs Amateur Class

California Camera Club	20
Miniature Camera Club of New York	17
Detroit Camera Club	14
Photographic Society of San Francisco	10
Amherst Camera Club	9
Oakland Camera Club	4
Camera Club of Richmond	2
Green Briar Camera Club	1

Small Clubs Amateur Class

Dallas Pictorialists	8
Camera Club of San Pedro	6
Modesto Camera Club	5
San Marino Camera Club	5

(Continued from page 415)

to expect, or perhaps it would be better to say that the observer owes it to himself to let his imagination play with what he sees in the print. Here there is a delightful play of textures between wood and door knob; a well established pattern with the shadow in the doorway nicely balancing in the brilliant white of the knob; and finally, does not the brilliant, untarnished knob contrasted with the decaying wood offer food for the imagination?

Data: 2¼ x 3¼ Speed Graphic; Bausch & Lomb Tessar; Agfa Super Pan Supreme film; 11 x 14″ print on EK Kodabrom glossy.

(Continued from page 419)

path which would lead into the picture. The only real solution in the present case is to photograph a foreground somewhere else and bring the two together by combination printing. Because of the light foreground, termination of the print at the base becomes rather indefinite. Mr. Cannon has included a black line here which we have retained in the reproduction. It does delineate the lower edge of the print, but at the same time it serves to call undue attention to, or give too much strength to, the horizonal line which runs along the base of the tree. A black border all around would be much too prominent with this high key print. We believe the best solution would probably be a grey underlay kept fairly narrow.

Data: 2¼ x 3¼″ Ensign Reflex; Agfa Super Plenachrome Pack. in D-76; K-1 filter; 14 x 17″ print on Defender Velour Black I, in D-72; Agfa Direct Sepia toned.

Correspondence*

What Is Good Photography?

Dear Sirs:

It is a compliment to Camera Craft and to me that the opening article in the June number of the leading Eastern photographic journal, American Photography, is devoted to a reply to my treatise, **What is Good Photography**, which you published in your November number of last year.

I would like to take this opportunity to express my appreciation to its noted author and photographic authority, Paul L. Anderson, for a fair and courteous treatment of an admittedly contentious subject. Although in part he disagrees with me, he does so in a thoughtful and kindly manner that wins respect. It would require too much time and space here to take up the argument over those points where we do not reason alike, nor is it necessary to do so. All that need be asked is that my attempted statement of principles and his reply be given a thoughtful consideration by those of your readers whose minds, rising above the hebetude of general photographic accomplishment, seek for a deeper understanding of photography.

Sincerely,
Roi Partridge.

Mills College, Calif.

Make Your Pictures Sing!

Dear Sirs:

Paul Hexter's book "Make Your Pictures Sing" is the best I have ever seen. I have gotten more from it in two weeks than I have from four other $3.00 books and a year's reading of five leading camera magazines.

There is just one thing I don't like, and that is that the negative is too large for an Omega A enlarger (35 mm.) and I feel that I am missing some fun by not being able to play with it. I wonder if it would be possible to get a perfect negative in the 35 mm. size. Please advise, giving the cost of same.

Yours truly,
W. W. Kingsbury.

362 Jackson Ave.,
Glencoe, Ill.

The limitations of quantity production make it impossible to supply the negative in any but the 2 x 3" size. It is not presented as a finished picture but only for technical purposes. Consequently there is no reason why 35 mm. users, or others, should not trim out a central portion containing a full range of densities. Such a segment will serve all the purposes for which the entire negative is intended.—Ed.

Gentlemen:

Through courtesy of the Photographic Society of San Francisco, we received the other day for our library a copy of Paul Hexter's "Make Your Pictures Sing," published by you. It is an excellent book of its kind and we are delighted to have it. However, there is a disturbing error of credit to which we should like to call your attention.

On page 19, figure 4, "Girl with Green Eyes" by Henri Matisse is credited to the Museum of Modern Art. Undoubtedly the photograph or cut was obtained from that museum and as such the caption is correct. However, it confuses or, rather, conceals the fact that this painting belongs to Miss Harriet Levy of San Francisco, and that it is on more or less permanent loan to the San Francisco Museum of Art where it may be seen at regular intervals throughout the year.

Whether one should credit the collection to which a painting belongs or the source of the photograph of it may seem an open question. Nevertheless, where there is possible confusion as to where a painting may be seen in the original, we prefer the former as regular procedure.

Sincerely yours,
Robert F. Burns
for the Museum.

San Francisco Museum of Art,
San Francisco, Calif.

Pictures Wanted

Gentlemen:

We are in the market for photo-reports on Clay Sewer Pipe installations in the Middlewest and Southern part of the country. Up to fifteen dollars will be paid for picture stories of the kind we need, the rate depending upon their value to us as promotional material.

Clay Sewer Pipe lends itself well to photographing. It has universal distribution. There is hardly a community in the country that does not use it. Its applications are numerous. It is used out-of-doors where lighting is such that even inexpensive cameras can do presentable work.

The pictures obtained are to be used in a small tabloid house organ and in institutional booklets which we prepare and publish for one of our clients. We are interested in picture sets. That is: a series of photos that illustrate a story. Pictures which are not accompanied by supporting information will not be accepted.

A complete set of instructions which tells the kind of information needed, and a sample sheet showing sample pictures of the type wanted will be sent free to all interested parties.

All inquiries should be mailed to:

Buckley, Dement & Company
1302 West Jackson Boulevard
Chicago, Illinois.

Yours truly,
Scott Robertson.

Buckley, Dement & Company
Chicago, Ill.

*Readers are requested to add a postscript to letters intended for this department, expressly granting permission to publish, **and are urged to write as briefly as possible.**—Ed.

Correction

Gentlemen:

On page 365 of your July 1940 issue, you make the statement that (question no. 3) "When using acids always add the water to the acid, never the acid to the water," and on page 372 in the answer division, you say that the statement is false, which is correct, and then contradict yourself by explaining that "the less active chemical should be added to the stronger one," etc. In order to avoid confusion which might be dangerous, I should like to point out that it is not a matter of the relative activity of the chemicals used, but of their density. In mixing acids and water, the acids are almost always denser. If the water is poured into the acid, it remains on the top in a layer and the heat of mixing causes the water to boil, sometimes with explosive violence, throwing a hot dilute acid solution into the face of the person mixing in this way. If the acid is poured into the water, the acid sinks to the bottom, automatically mixing itself on the way down if it is not poured in too fast. The proper mixing of acids and water is an easy thing to become confused about, and the correct explanation, as given above, is not widely understood, although it is to be found in a few high-school chemistry and physics texts. It might save someone an acid burn if you would replace your incorrect explanation by something similar to the above.

Very truly yours,
Charles F. Robinson.

Los Angeles, Calif.

Dear Sirs:

. . . This contradicts the first part of the answer. In reality, the normal procedure is to add the more active material to the less active. The only case which a photographer would be likely to run up against where it would really make any difference is in the dilution of sulfuric acid. Here serious accidents may occur unless the acid is added slowly, with stirring, to the water (the more active to the less active). In the dilution of glacial acetic, hydrochloric acid, etc., no harm is likely to result from the reverse procedure, although as a general rule it might be best always to add the acid to the water. . . .

Very truly yours,
Maurice J. Schlatter.

Crellin Laboratories,
Pasadena, Calif.

What You Want To Know About Developers

Gentlemen:

I, as a subscriber of your very excellent magazine, am apt to take your advice about any new publications especially when they come out under your sponsorship. Your book by Dr. Lowe on developers is splendid. . . . I find myself referring to it frequently, so frequently that I sometimes wonder just what I did before I had it.

There are a couple of things I wish you would do for me though. I would like to know whether the developing times on page 116 are for continual agitation or for two minute lapses. And I should be pleased to have or to know where to obtain the formula booklets mentioned on page 90 which are published by the Edwal Laboratories.

Yours sincerely,
Louis Jaques.

Toronto, Canada.

The developing times on page 116 of my book were determined with agitation once every two minutes. We have found that with manual agitation of this type it does not make much difference whether the agitation is carried out once every minute, once every two minutes, or once every three minutes, provided it is reasonably vigorous each time. —E. W. Lowe.

The formula booklets of the Edwal Laboratories, Inc., may be obtained from most dealers, or by addressing the company at 732 Federal St., Chicago, Ill.—Ed.

Club Notes

Exhibitions

With presentations of documentary and experimental films, a show of color photography, contemporary American photography, and a special section devoted to works by living California camera artists, the Pageant of Photography at the Palace of Fine Arts on Treasure Island is one of the most comprehensive exhibitions of photography ever assembled in this country. For the first time, photography has been given a prominent place in a Fine Arts Show of a great Exposition. San Francisco's internationally known camera artist, Ansel Adams, in conjunction with Tom J. Maloney, editor of "U. S. Camera," has gathered this unique exhibit. Of particular interest these days is a show of strikingly beautiful prewar photographs of Paris. These photographs were made by Eugen Atget, who died practically unknown in 1927 at the age of 72. For almost thirty years Atget had been trudging around Paris with an 18 x 24 cm. camera. He made about 1600 plates. The American photographer, Berenice Abbott, who had become tremendously interested in his work on a previous visit to Paris, spent about a year locating his possessions, which at his death had been unceremoniously carted away. It took another six months to sort out the albums, glass negatives and prints. Bringing them back to the United States on Miss Abbott's return in 1929 required twenty packing cases.

The Oval Table Society's Members Salon will be exhibited at the Photographic Center, Hall of Industry & Metals, New York World's Fair, from July 13th to August 2nd. 183 fine prints will be displayed in this show. In addition, the Oval Table Society is sponsoring an exhibition of 23 prints by Lowell Thomas Jr.

The Annual Salon of the Miniature Camera Club of New York is currently being exhibited in the club's Mezzanine Gallery, 22 East 38th St., N. Y. C. Following this exhibition, the show will appear at the New York World's Fair and will then begin a tour of the nation's leading camera clubs.

The 18th All-American Salon of Photography will be exhibited in two Southern California cities during August. From August 1st to 11th at the Photographic Art Bldg., Balboa Park, San Diego, under the sponsorship of the Photographic Arts Society of San Diego. August 15th to 25th, at the Santa Barbara Museum of Art under the sponsorship of the Channel City Camera Club of Santa Barbara.

A permanent collection of Salon Photographs is now being assembled by the Brooklyn Museum, Eastern Parkway, Brooklyn, N. Y. The collection is to be formed by invitation by the curator, Mr. Herman de Wetter, A.R.P.S., A.P.S. The collection is being formed to remedy a situation which has been observed by those interested in the subject of fine photography, of the appearance of valuable work in exhibitions and its eventual disappearance because there is no central permanent institution to preserve it. Prints will be invited from every field of photography including news photographs and advertising. When the collection has reached suitable proportions an exhibition will be arranged, to be followed by other exhibitions as conditions warrant.

Announcements

Final results of the nation-wide Continental Monthly Print Contest held among camera clubs each month from October to May have just been announced by the Photographic Society of America. First place was taken by the Photocrats, of Akron, Ohio; Second, the Rothschild Camera Clinic, of Los Angeles, Calif.; and Third, the Utica Camera Club, of Utica, N. Y.

The Photographic Society of America has been conducting a drive for new members and is pleased to announce the tremendous success of the drive. A total of 211 new members, 34 new clubs and 12 new substaining memberships have been registered. During the month and a half during which the drive was conducted, the Society obtained more new members than in any like period during its history. Particularly to be commended are the Membership Drive's Director, Mr. Don Loving and the Society's Secretary, Mr. F. Quellmalz, Jr., whose efforts made this success possible.

Club Activities

It will be well for all clubs to appoint a "Committee for Knowing Where the Fuses Are and How To Fix Them" if we are to be forewarned by the experience of the Shorewood Camera Club, of Milwaukee, Wis., as we read it in the latest copy of their bulletin, "Skweegee." The club had assembled for an evening of taking pictures with models, lights and cameras in profusion, when out went the lights. Having no FKWTFAAHTOFT Committee, the lights never went on again that evening and the meeting was held without benefit of lights and shadows. Club presidents, appoint now!

The Albany Camera Club, of Albany, N. Y., conduct an interesting contest in connection with their traveling show. Each club that views their show is asked to select the five best prints. It is interesting to note the results of the first contest in which twenty-two clubs sent in selections. With a possible score of 110 points (counting 5 for first, etc.), first place was won by Mr. Junggren's print, "Their Majesties," with 76 points.

The Women's Photographic Society of Cleveland, 402 Finance Bldg., 750 Prospect Ave., Cleveland, Ohio, recently celebrated their second anniversary. This energetic group which is one of the few women's camera clubs may well be proud of their activities of the past two years. The membership has made the name of their society well known in all photographic circles.

The Southern California Council of Camera Clubs held their annual convention on June 15th, in Los Angeles, Calif. The meeting was very successful, problems of the organization were discussed and plans laid for the coming year. The Council was invited to send an exhibition of 50 prints to the New York World's Fair. 375 prints were submitted by members for the exhibition and Mr. William Mortensen selected the 50 prints to be sent to New York.

"The A. C. C. News," club bulletin of the Atlanta Camera Club, of Atlanta, Ga., publishes the winning print of their monthly competition on the front page of each issue. These prints are always well presented with fine engravings and letterpress but this month the winning print inspired the engravers and printers to let out all the stops. Mr. Lawson Field's winning print received their tenderest care and is tipped on to the cover so that it may be removed for framing. A very attractive presentation and one we are sure Mr. Fields will be proud of.

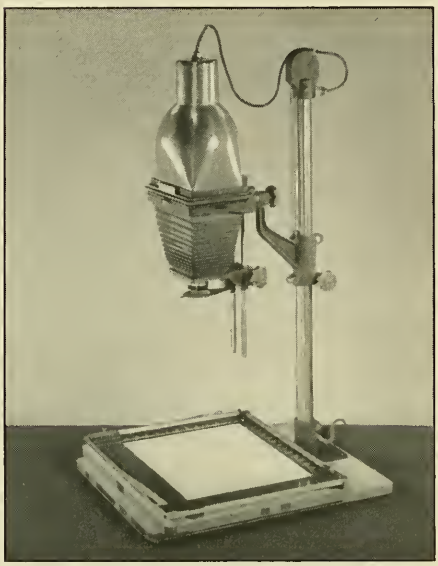
New Clubs

The Photographic Society of Houston is a new photographic group recently organized in Houston, Texas. The new club has a limited membership, open by invitation only, and will have no formal organization. This small, informal group will devote itself to the betterment of photography. Plans are now under way for an exhibition of members' prints. Correspondence can be addressed to Mr. W. E. Dancy, 2008 Alta Vista St., Houston, Texas.

The Photographic Arts Society of Buffalo, N. Y. is a new group recently organized with 25 active and 18 associate members. The group meets every second and fourth Thursday of the month. Communications should be addressed to F. L. Lutze, Secretary-Treasurer, 125 E. Delavan, Buffalo, New York.

A Council of Camera Clubs for groups in the area south of San Francisco to Monterey, California, is now being organized. Temporary officers are Jack Garnett, President and Karl Finley, Secretary, 595 N. 16th St., San Jose, California. The council plans to furnish speakers and judges to member clubs, arrange outings, interchange of prints, etc. Further information may be obtained from Mr. Finley.

Notes and Comments



Kodak Precision Enlarger Assembly B

New Products

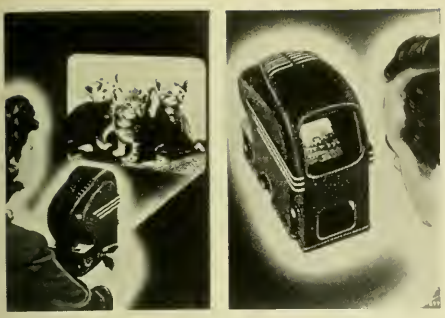
The Kodak Precision Enlarger, Assembly B, has just been announced by the Eastman Kodak Co., of Rochester, N. Y. The new model will accommodate negatives up to 4 x 5½ inches. The new unit, which incorporates all the features of model A, can be used for making enlargements and reductions, lantern slides and film positives, and, with accessory units, for making and projecting enlarged color separation negatives from Kodachrome transparencies, for direct photography in color or black-and-white, including small object photography, for copying in black-and-white or color, and for photomicrography. Announced simultaneously are three new Kodak Projection Anastigmat Lenses in focal lengths suitable for the larger negatives. Kodak Precision Enlarger, Assembly B, is priced at $75.00, without lens.

The Raygram Photo Color Kit offers a new method of coloring all positive photographic materials: prints, transparencies, or lantern slides. The kit contains eight colors all of which may be blended to obtain a great variety of colors and shades. The method is simple as the colors are impregnated in cotton which is twisted around the end of a stick, moistened in water and then applied to the print. The kit includes a receptacle for water, a bottle of color erasing fluid, sticks for making cotton swabs and a booklet giving complete instructions. Price is $1.25. See your dealer or write the Raygram Corp., 425 Fourth Ave., New York City, for further details.

To introduce the new Wesco All-In-One Tripod Head, the Western Movie Supply Co., 254 Sutter St., San Francisco, Calif., is offering a combination summer special that includes the All-In-One Head and the Wesco Special Tripod at a combination price of only $9.95. The Wesco Special Tripod has adjustable leg tips that permit the photographer to have either steel or rubber tips by simply turning the metal ends of the tripod legs. It extends to 56½ inches and all adjustments are made quickly and easily. Price alone is $7.95. The Wesco All-In-One Tripod Head offers quick, simple control, for a slight turn of the tilt arm locks both the tilt and pan action. Price alone is $3.95. In combination these two Wesco items are now obtainable at your dealer's for $9.95.

A new Weston Master Cine Exposure Meter has just been introduced by the Weston Electrical Instrument Corp., of Newark, N. J. Specifically designed to provide extra convenience and accuracy for movie camera users, the new Master Cine provides two important features, in addition to the advanced design of the Universal Weston Master: a sharp-shooting viewing angle of 25 degrees providing the same scene coverage as the camera lens; and a "pre-set" type of exposure dial, permitting the user to set his film speed, frames per second, etc., in advance and thus read the correct aperture from the dial without turning a disk at the time the shot is being made. Price is $24.00.

Weston Master Cine Exposure Meter



Hollywood Viewer-Projector

The new Clipper Model of the Hollywood Viewer-Projector permits either daylight viewing of slides or their projection on a screen across a darkened room. When used as a viewer the image may be seen through the "eye angle" window, projected with exceptional brilliance in broad daylight on the miniature 4½" screen within the streamlined cabinet. To use it as a projector it is only necessary to turn the convenient knob. The optical system has been engineered to provide more brilliance, and sharp definition is assured by the high quality of the 4" projection lens. The price, $49.50, includes a simulated leather covered carrying case with compartment for a slide file which holds 100 slides. A new illustrated folder is available from the manufacturer, Craftsmen's Guild, 1640 W. Washington Blvd., Los Angeles, California.

A new type of color film adapter has just been introduced by the Essenkay Specialty Company. This adapter enables users of cameras producing 2¼x2¼" negatives to utilize the popular 828 size film (either Kodachrome or black-and-white). No special installation is necessary—just slip the adapter in, load with 828 film, and shoot. This doubles the usefulness of these larger cameras, allows the use of Kodachrome color film, permits the economy of smaller film size, and gives the benefits of telephoto lens effect on this small film. The Essenkay Color Film Adapter is designed so that everything on the standard camera continues to function in the same way. Even the automatic film stop and exposure counter will work with this adapter, which can now be seen at most photographic dealers. Additional information may be obtained by addressing the Essenkay Specialty Company, 2501 Winnemac Avenue, Chicago, Illinois.

The Agfa 5 x 7" Universal View Camera is now available with a 4 x 5" back announces Agfa Ansco, of Binghamton, N. Y. This special model has been introduced in recognition of the demand for a professional camera to employ 4 x 5" sheet films. The camera with 4 x 5" back is priced at $72.00. Supplied with both 5 x 7" and 4 x 5" backs the price is $86.00.

Golblend is a thoroughly tested economical preparation which will produce a range of tone with one single toning from a slight "gold-tone" warmth to rich brown. It is distributed by the Gross Photo Supply Co., 1501 W. Bancroft Street, Toledo, Ohio, and illustrated circulars will be supplied upon request.

The new Hydro Agitator, introduced by Henry Herbert, 485 Fifth Avenue, N.Y.C. provides an efficient agitator for developing your films at the amazingly low price of $2.00. The Hydro Agitator operates by water power from your faucet, providing accurate agitation in a continuous up and down motion. It is easily attached to the faucet and agitating speed is adjusted by the pressure of the water. There is nothing to break down or go wrong. Write the above address for further details.

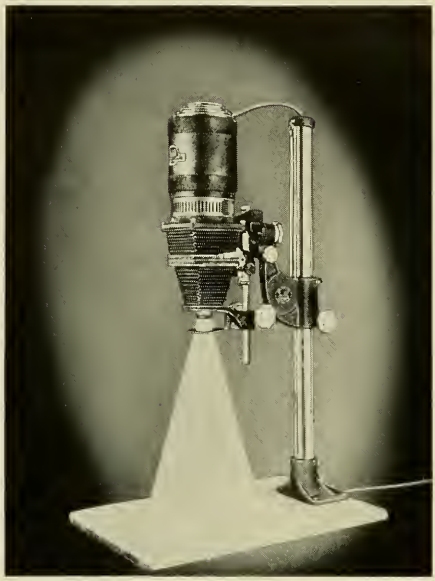
Curtis KD One-Shot Color Camera

The New Curtis KD one-shot color camera introduced by the Thomas S. Curtis Laboratories, Huntington Park, Calif., is a practical single exposure color camera embodying the features of fine definition, excellent color balance and lowest cost. In the KD the Curtis Laboratories continue their policy of offering knock-down units at attractive prices. The KD in knock-down form is $67.50; completely assembled and balanced its price is $95.00. Both prices without lens. Any standard F:4.5 or F:6.3 anastigmat with a focal length between 5½" and 6½" may be used. The KD color camera makes original negatives, not copies. Film costs only 20c per 3-color exposure. A book clarifying the subject, entitled "Color Photography with a Single Mirror Camera," price 50c, may be obtained from your dealer or from the manufacturer, at the address above.

Triple Lens Board for Solar

A new triple lens board for use with all models of the Solar enlargers except the Junior, has just be introduced by Burke & James, Inc., 223 W. Madison Street, Chicago, Ill. The new triple lens board slides easily back and forth, permitting instant placement of any lens in to the optical center of the enlarger. The board will accommodate

lenses up to 7½″ in focal length. Price is only $4.75 without lenses.



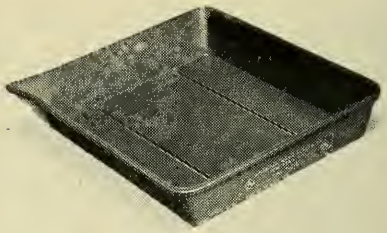
DeJur Versatile Enlarger

The new DeJur Versatile Enlarger has been announced by the DeJur Amsco Corp., of Shelton, Conn. Its uses are many and varied: as an enlarger; a camera for copying; a camera for table top photography; a camera for photo-micrography; a camera for portrait and still life photography; for Kodachrome and three-color work; and for transparency projection at any angle. The Versatile Enlarger shown here accommodates negatives from 1″x1″ to 2¼″x3¼″. The design of the Versatile's lamphouse prevents any possible damage to the negative from heat even if the unit is left on for hours. The Versatile has 5½″ double condensers and, as an outstanding feature, a combination of negative distortion control and lens focusing. The Versatile offers many other important features and a folder giving a complete description is available from the above address.

F-R Develochrome is a new direct color toning process developed by the Fink-Roselieve Co., Inc., in cooperation with Mr. Anton Bruehl, the distinguished American photographer. It offers a wide variety of colors, depending only upon the ingenuity of the photographer. Three basic and three additional colors are available: red, yellow, blue, sepia, sea green and snow blue. The process is simple, and a booklet completely describing it may be obtained upon request. Write the Fink-Roselieve Co., Inc., 109 W. 64th Street, N.Y.C.

Announcements

Price reductions on two sizes of Ace Genuine Hard Rubber Trays have been announced by the American Hard Rubber Co., 11 Mercer St., New York City. 5 x 7″ size is



Ace Hard Rubber Tray

now only 50c and the 8 x 10″ size is 75c; these were formerly priced at 60c and 90c, respectively. Ace Genuine Hard Rubber Trays are available in all sizes up to 20 by 24″ and are practically indestructible, offering years of service. See them at your dealer's.

Hillary G. Bailey, F.R.P.S., announces the opening of a new photographic enterprise operating under the name of Shadow-Art Industries, Inc., 2343 No. Meridian St., Indianapolis, Ind. Mr. Bailey says that the new business will service those photographers, amateur or professional, who like to make negatives and have someone else do the finishing even to the point of making salon type of prints.

General confusion in the two cut sheet film sizes 2½x3½″ and 6.5x9 cm. has been noted by the Technical Product Information Department of Agfa Ansco, Binghamton, N.Y. These two sizes, although representing a difference of only .06″ in width and .04″ in length cannot be used interchangeably. This applies both to the sheet holder and to the film. All sheet films are normally cut slightly smaller than their stated dimensions, in order to make them fit easily and smoothly into their holders. The actual sizes are standard among American film manufacturers. Discrepancies that have arisen in sheet film sizes have been due mostly to camera importations, but no trouble will result providing consumers make sure to get the right size for their particular camera.

This year's line of the famous Photo-Greet Christmas Cards will far exceed last year's output in both beauty and volume, announces the Franklin Greeting Card Co., 329 South Wood St., Chicago, Ill. Having just moved to their new and larger quarters, at the address above, the company is now ready to offer photographers the best of service. They have developed a new, easy method of attaching prints to the Christmas cards. This method also provides for nearly all popular sized prints.

Oil paintings from Kodachromes are offered by Jackson Hart, 405 Lodge Drive, Detroit, Mich. Processed by a master technician and colorist, they are genuine oils on canvas. The pictures are varnished and mounted ready for framing. Prices: 5 x 7″ are $10.00; 8 x 10″ are $15.00, etc., up to 20 x 30″ for $100.00. Further details may be obtained from the above address.

One of the most interesting Photo Mural installations at the San Francisco Fair is to be found in the Ford Exhibit. The commission which was handled by the Moulin Studios of San Francisco contained some tough problems. Not the least of these was

8 x 45 foot Photo Mural in Ford Exhibit, San Francisco Fair. Made by Moulin Studios, San Francisco.

the making of an 8 x 45 foot mural from three negatives made in 1889. The thought of printing a large mural from anything but a negative on the latest fine grain emulsion plus fine grain processing would give most of us the horrors but the Moulins showed what a remarkably good job could be accomplished by skilled technicians. This particular mural is shown in the illustration above. It was printed in nine sections (3 from each of the 8 x 10 negatives) each 3 x 15 feet long, and shows a view of San Francisco taken in 1889.

All told there are 3250 square feet of photo murals in the Ford Exhibit, all made by the Moulin Studios, some from old negatives, and some from new negatives of their own making. This progressive firm, headed by Mr. Gabriel Moulin and his two sons, Raymond and Irving, is at present moving into their own quarters at 181 Mission St., San Francisco. With 18,000 feet of floor space at their disposal the Moulins are installing one of the most modern and complete commercial studios in the West.

Booklets and Catalogs

A new 76-page catalog covering everything for the camera, still or movie, has just been published by the Conway Camera Co., 34 North Clark St., Chicago, Ill. Completely illustrated, it describes all the equipment and supplies in detail. A free copy will be sent upon request to the above address.

The General Electric Company, Schenectady, N.Y., announces the publication of the G-E Photo Data Book and the inauguration of a Photo Data Service. The G-E Photo Data Book is 112 pages, cloth bound, and handy pocket size, and was edited by Karl A. Barleben, F.R.P.S., well-known photographic author. The book covers a wide variety of information: film speed values, flash and flood data, filter data, formulas, weights and measures, etc. Price is 50c at your local dealers. The Photo Data Service is open to all photographers. Problems relating to exposure, lighting and the use of the G-E exposure meter will be gladly solved by this department. Write to the Photo-Data Service Bureau, Meter Division, General Electric Co., Schenectady, N.Y.

A "Handbook of Color" will be pulished by the Fotoshop, Inc., 18 East 42nd St., New York City, on August 19th. It will contain a complete description of every type and make of color camera, lighting equipment, chemical, printer, color film, etc. The contents will also include laboratory instructions for all color processes; technical data on film, filters, etc.; a thorough basic course on the fundamental principles of color photography and a book review supplement. A limited edition will be printed, therefore, readers are urged to reserve their copy now. Price 25c.

A free booklet describing the Meyer Precision Synchronized Rangefinder, for plate and filmpack cameras, is available upon request to Hugo Meyer & Co., 39 West 60th St., N. Y. C. Ask for booklet No. 38.

Our Book Shelves

One Hundred Advertisements for Portrait Studios, by Charles Abel and J. H. Barr. Published by Charles Abel, Inc., Cleveland, Ohio. 103 pages, 6 x 9 inches, spiral binding. Price $3.00.

These are definitely the days when the man with the sound method of business promotion wins. Surely no portrait photographer needs to be told of the necessity for advertising. However, the experienced professional also knows that much hard-earned money can disappear down the drain of misdirected advertising.

It is not always the prettiest advertisement that brings in the customers. Tests can be made but these are costly. The need for tests and experimenting are eliminated by this book which will fill the portrait photographer's every advertising need.

The one hundred completely prepared advertisements cover every possible portrait sales angle. They are classified by subjects and so prepared that it is only necessary to tear out the advertisement you select and hand it to the advertising solicitor.

The experience of years of practical contact with studio problems is behind these advertisements for Mr. Charles Abel knows these problems as few other men. Actually this is the seventh in a series of similar books, none of which duplicates the others in any way, and the last one was published fifteen years ago. Each of the previous volumes was enthusiastically received and the present insistent demand has moved Mr. Abel to prepare this new book. Typography and layout were done by Mr. J. H. Barr, who has had many years experience in newspaper advertising.

In addition to the actual advertising copy value of the book, the portrait photographer will find this book to be packed with promotional ideas that may be easily adapted to direct mail and other advertising mediums.

Photographic Enlarging, by David Charles, F.R.P.S. Published by Iliffe & Sons, Ltd., of London, England. 112 pages, 5 x 7½ inches, illustrated, cloth binding. Price 3/9.

This is a thoroughly practical manual on the technique of enlarging. The emphasis is on actual operation of the enlarger and hints that make working simpler and more effective.

An excellent feature of the book is the comparison of the various types of enlargers, describing their advantages and limitations. This section should prove particularly helpful to the prospective purchaser of an enlarger.

A complete system is presented that carries the enlarged print from the exposure through developing, fixing and washing. On every page Mr. Charles shows his grasp of those problems that confuse and delay the beginner in his work, for no small helpful detail is omitted and this practical advice will save the tyro many a dreary failure.

Photographic Facts and Formulas, by E. J. Wall. Revised and rewritten by Franklin I. Jordan, F.R.P.S. Published by the American Photographic Publishing Co., of Boston, Mass. 384 pages, 6 x 9¼ inches, cloth binding. Price $2.50.

A suitable subtitle for this volume might be "What You Want To Know, When You Want To Know It" for it contains the answers to all the common problems the photographer meets in the darkroom, as well as many uncommon ones.

Space will not permit a listing of its subject matter which ranges from optics, through developing, printing, intensification and reduction, toning, printing processes, lantern slides, color photography, etc. etc.

There is no pretense at imparting purely scientific knowledge for the purpose of this book is to present practical working information to the photographer in his darkroom as clearly and simply as possible. By this we do not mean that important details are ignored or glossed over but only that as a practical working manual the directions are kept concise so that they may be quickly understood and applied.

Camera Take The Stand, by Asa S. Herzog and A. J. Ezickson. Published by Prentice-Hall, Inc., New York City. 196 pages, 6 x 9 inches, illustrated, cloth binding. Price $3.00.

Here is an exciting account of how the camera is used in fighting crime. Actual cases are used as examples.

It came as a surprise to this reader that the camera had grown to be one of the most useful tools in police work. Many are the uses to which it has been adapted and as the book ably points out the use of the camera's evidence has come to be very effective and accepted in the courts.

The book gives detailed descriptions of the various uses of photography and ties them in with examples from crimes which they helped to solve.

Though the reader of this book may have no direct interest in police work, he cannot fail to find this book interesting, absorbing reading.

Portrait Photography As A Career, by Juan C. Abel. Published by the American Photographic Publishing Co., of Boston, Mass. 335 pages, 4¾ x 7¼ inches, illustrated, cloth binding. Price $3.00.

There are few books on photography as a business and none to our knowledge that deals with the subject so thoroughly and completely as this volume. It explains in minute detail how to begin and conduct a portrait studio.

Every phase, from the selection of a location and layout of the studio, through price structure and bookkeeping systems, to the problems of selling are carefully studied.

Any photographer, whether he is planning to go into portrait work or is already conducting a studio, will find this book a real source of practical help and sound advice.

CAMERA CRAFT

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WILLIAM MORTENSEN

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A Discipline For Portraiture

William Mortensen

IN THIS series of articles we are trying to arrive at a clarified ideology of portraiture. Last month we discussed the two types of portraiture that prevail in the pictorial arts. One of these types is concerned with effects and externals, the other with solid personal values. Photography has, unfortunately, proved itself to be damnably apt in rendering flashy external qualities. So a large part of contemporary photographic portraiture is devoting itself to conscientious and deliberate superficiality. This tendency is seen in the adherence to fashionable and standardized criteria of pulchritude and in the sedulous imitation of the currently popular version of "glamour."

For temporary record and for flashy publicity purposes, the superficial vein of portraiture is no doubt the most appropriate. But in portraiture we often wish something a little more permanent, something that, ten years hence, will call forth some reaction other than simple hilarity over the quaint vagaries of the nineteen forties. To accomplish this end, particularly in photography, we must learn to practice a strict discipline. Only by denying ourselves much that is attractive and immediately effective, only by curbing the excesses of the photographic process, can we arrive at an ideal of portraiture that disregards the superficial, that seeks personal values, and that has some pretensions to permanence.

In this article I shall try to outline something of the discipline and self denial that must be practiced by the photographer if he wishes to achieve a type of portraiture that is simple, sincere, direct and honest.

Generally speaking, there are four phases of picture making in which he must learn to exercise particular restraint. These correspond to the four ways in which any blatant example of the glamour school betrays its lack of sincerity: by *lighting* that is flashy and obviously concocted; by *costume* that is aggressively contemporary and expensive; by *make up* that owes more to the theatre than it does to the contours of the human face; and, finally to *pose* that is plainly concocted. For honest portraiture you must in fact deny yourself a great deal of fun. It is fun of course to juggle

light units around and put accent highlights where neither God nor man ever saw them before; it is fun to whip up a make up compounded of Dietrich's eyebrows, Hedy's eyes and Joan Crawford's lips; it is fun to bend a model into a provocative pretzel: but all these juvenile pleasures must be foregone if you really want to make portraits.

First, about lighting. Lighting is probably the first thing that betrays the superficiality of a portrait. If, on looking at a portrait, you are immediately aware that a *job of lighting* has been done, you are certainly looking at an example of the show-off glamour school. The job of lighting may be a clever one or an awkward one, but it remains in any case simply a concocted effect existing for its own sake rather than for the sake of the picture. One who is wise to such matters can tell you of the complicated means by which the effect in question is achieved: two photofloods at 30 and 60 degree angles, two Parabolic Oomphlites, backlighting of the hair and cheek by a Rotzbury Rimlite, and accenting of the tip of the nose by a Boomberg spot.

It is true that, in skillful hands, such combinations may produce interesting *effects*. But, however skillfully managed, they are *merely* effects, superficial and theatrical, and they have nothing at all to do with the deeper issues in portraiture. In honest portraiture, lighting effects are irrelevant, impertinent and distracting.

In portraiture the sole business of lighting is illumination. Lighting is applied to the subject simply that we may *see* it fully and completely. Any monkeyshines or cute tricks on the part of the light itself must be restrained with a firm hand—just as the stage director restrains the overly ambitious one-line actor who tries to steal the scene on the basis of "My lord, the carriage waits."

The lighting that most nearly realizes this ideal of mere illumination is that which I have elsewhere designated as the Basic Light*. For occasional variants the Modified Basic or Plastic Light may be used. When coupled with correct photographic procedure, the Basic Light renders the subject on its own terms, with full gradation and modelling, free from any distraction by irrelevant lighting "effects." Under the honest illumination of the Basic Light, the high lights and gradations appear where they logically belong, without any need of artificial stimulation by "boom lights" or "accent lights."

The Basic Light is simply *illumination;* so the subject may move freely in it, without any need of readjusting lighting units during the whole sitting. Under the more complicated arrangements, such as I have just described, the model can scarcely lift an eyebrow without requiring a thorough reshuffle of the whole set-up. The complications cannot help but make the sitter uncomfortably aware of the grinding of the machinery in which he is, it seems, only a small cog. This state of mind usually leads the sitter either to a condition of nervous apprehension or to a defensive glassy aggressiveness—seldom to that relaxed unawareness required for portraiture of this type.

The right kind of lighting is therefore the first thing to establish in seeking for sincerity in portraiture. Lighting is, in a sense, the most im-

* Pictorial Lighting, Camera Craft, 1937.

"In October" *Lowell N. Miller, Rochester, N. Y.*
1940 Kodak Exhibit

portant of all the elements in portrait procedure; for honest lighting immediately betrays any dishonesty elsewhere in the picture. In the straightforward illumination of the Basic Light, the quality of the costume, make up and pose is subjected to a searching examination.

Costuming is the second phase of the portrait which must undergo strict discipline. The photographer is here obliged to tread a delicate middle path. On the one hand, he must remember that he is making a

portrait, not a fashion plate. So there should be a careful suppression on anything conspicuously contemporary, that proclaims its date and the shop from which it was bought. On the other hand, the photographer must remember that he is making a portrait, not a pictorial piece. Consequently he must guard against too much suppression of literal detail in dress. A person's taste in clothes is very much part of his character. If the subject has an outlandish taste in clothes, it is certainly the function of honest portraiture to take note of the fact rather than to try to correct it. Younger subjects, however, may sometimes be presented in a generalized dress that deliberately avoids the implications of period.* There may even be, as in the frontispiece with this article, a hint of some other period without any violation of the essential honesty of the result—*provided* that the lineaments and character of the subject definitely suggest this period.

The general rule for costume in portraiture may be stated thus: *Simplify so far as possible without violating the personal proclivities of the subject.*

In the matter of *make up* the photographer has less occasion to note the personal taste of the subject than he does with clothes. Practically no type of street make up is adapted to photography, owing to the tonal distortions and exaggerations introduced by the process. Even a fairly conservative make up for street use looks unpleasantly faked when photographed.

So the first step with make up is to wipe off all that the subject has on. Clean skin, with just a hint of cold cream on the high lights, is much more photogenic than a skin laden with powder, which shows no more gradations than a calsomined wall.

Lipstick, indelible or not, should be scrubbed off also. Lips, in good portraiture, should show *modelling*, and they can't do this if they are thickly salved over with carmine ointment. Lipstick, if used at all in portraiture, should be used with great restraint, and only in sufficient amount to effect any tonal correction required in the photographic process. If ortho film is used, no lip stick at all will be needed.**

Posing is the fourth phase of portraiture wherein discipline must be practiced. There are two parts of this problem of posing. The first is concerned with the actual arranging of the material before the camera, the second with the photographer's personalized formula for dealing with his subject.

As a medium of portraiture, photography has become a victim of its own unholy facility for catching things on the fly. Models are encouraged to go through a series of antics which the camera freezes to startling immobility. All of these more or less standardized "poses" are part and parcel of much that passes for portraiture nowadays.

Painters have never gone in for such antics. In the first place, these "poses" could never be held for any length of time. In the second place, no artist could ever bear to look at them, even if they could be held.

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* Note the illustration, "Jan," in last month's article.

** Ortho emulsions, of course, should be used whenever possible in portraiture. Although less "corrected," they render flesh tones with more crispness and fuller gradation than do pan emulsions.

In the early days of photography, before the problem of speed had risen to plague us, D. O. Hill and the daguerrotypists made their portraits somewhat on the pattern of the painters who preceded them. As a result, these early photographic portraits are still very pleasant to look at.

For the sake of good portraiture we must relinquish the excitement of these semi-acrobatic "poses." We must learn to take our time. There is no reason why a portrait should be photographed as though it were an auto race. It is much better for us to give up the dubious advantages of speed and to limit ourselves deliberately to slower emulsions, smaller apertures and less light. Under these conditions we will be obliged to choose a more objective and passive rendering of the subject. This limitation will not only yield better portraiture in the long run, but will pay ample interest in improved gradation and definition—old fashion photographic virtues that we have almost forgotten about.

We come now to the second part of the posing problem—the photographer's own personal tricks of direction. We have already mentioned the demoralizing influence on portraiture of excessive adherence to current formulas of pulchritude. Sincere portraiture is impossible so long as the attempt is made to pour all subjects into the same mold. Less recognized as a menace to portraiture is the inclination of many photographers to lay undue stress on their own personal procedures for handling subjects. This stress leads to bad portraiture in two ways. In the first place, it is conducive to standardization, each subject being put through his paces in the same manner. In the second place, this tendency tacitly sets the photographer and his way of doing things above the personality of the model.

Allowing for personal differences, we may note the prevalence of certain standardized schools of procedure in handling models. Let me outline the methods of a few of these.

1. *The Be-Yourself School.*
   "Now, I just want you as you are. Just relax and be yourself. Don't bother about me, I'm not going to hurt you. Ha, ha! No strain, please, you are trying too hard. Your hands? Just wherever you want to put them. Your feet? Don't think about your feet. Look wherever you want to look. Relax! No strain! Be yourself! One moment! . . . There! Now that didn't hurt much, did it? Ha, ha!"
   The result shows the subject with his collar askew, elaborately slumped in posture, and slightly harried in expression from the effort of trying to be-himself.

2. *The Shot-in-the-Arm School.*
   This line is delivered in accelerating tempo and with mounting excitement.
   "Sit down here, please. Oh, that's very lovely! Turn this way just a little bit! Further! That's fine! Pull in the right elbow! Raise your left shoulder! Raise it again! Again!!! Depress your chin! Open your eyes wide! Wider!! Charming! Now just *one* thing more. Raise your left eyebrow! Higher! Higher!! *Higher!!* HIGHER!! Beautiful!!! Hold it!"
   The sitting ends with both model and photographer in a state of impending nervous collapse. (I know. This is *my* method.)

3. *The Caught-on-the-Fly School.*
(The photographer is very brisk and chipper and pops about looking at the subject from all angles.)
"My, my, it's a beautiful day, isn't it. (Moving to the left.) What is so rare—and so on. I was saying to my wife only this morning that it looks like a remarkably cool summer. Don't you think so? Or do you? There! You didn't know I was going to take that one, did you? (Moving to the right.) On the other hand, as I was saying to a customer the other day, if we have *too* cool a summer, it may be bad for business. Don't you think so? . . . Surprise! I took another one."

4. *The Twilight-Sleep School.*
". . . and in the third race, see, I had picked Butcher Boy, a twenty-to-one shot. Of course, he hadn't been doing so well this season, but the way I figured, he was about due for a break. Of course my brother-in-law had a tip on Dewdrop, but I put the old bank roll on Butcher Boy. Well, what do you think? As they were going into the first turn—" (The sitter here passes into a coma, from which he emerges to hear—) ". . . and the proofs will be ready for you Tuesday afternoon."

5. *The Hidden-Soul School.*
(The photographer is a quiet, wistful person, and a phonograph is softly playing Debussy somewhere in the background.)
"Now I want you to imagine that you are walking up the gentle slope of a hill. The grass is soft underfoot and the hum of bees fills the air. Now you have reached the crest of the hill and the blue sky arches above you, filled with drifting white clouds. Look up at the clouds! Smell the flowers! Listen to the bees! . . . That's it! . . . Did you want these in the regular finish?"

6. *The Assembly-Line School.*
(The photographer is grim and businesslike and no-nonsense-please.)
"Sit there. Turn to the right. Chin higher. Look at that spot on the wall. (Click) Turn to the left. Chin higher. Look at that spot on the wall. (Click) Turn to the front. Chin higher. Look at the lens. (Click) That's all. Next."

For the best portraiture, all these performances must be eliminated, insofar as they represent an effort of the photographer to impose his own thought and will on that of the subject.

* * * *

This discipline for portraiture may seem to involve an extraordinary number of denials. We have denied the photographer the comforts of fancy lighting, of elaborate costume, of glamourizing make up, of acrobatic posing. Finally we deny him even the pleasure of putting on his Creative Artist act for the benefit of the sitter. Just what is there left for the poor man to live for? Simply this: the mature and substantial happiness of producing a piece of work that is honest and that stands on its own merits. The discipline seems a series of negations, it is true, but reaches through these negations toward solid positive values.

The Pageant of Photography

Ansel Adams

TO COLLECT an exhibit of photography might, at first thought, seem not only an engaging and exciting task, but rather a simple one as well. There are thousands of photographers, dozens of publications, scores of institutions and private collections—all potential sources of fine exhibit material. A number of letters, telegrams, telephones, and personal visits, a schedule of dates, a budget of expenses, and an electric enthusiasm presumably are all that is required to gather and present an exhibit.

Unfortunately it does not work out quite as fluently as one might expect. The enthusiasm and the budget, and the mechanical means of communication give the least trouble and despair. The attitude of the lenders is usually very fine; so is the attitude and cooperation of the gallery chiefs and assistants. The bugaboos are then, *time* and *availability of the desired material.* It is easy enough to think—"This Museum has that print of Smith's—I will wire for it." Maybe the museum sends a wire saying the print is on its way; but maybe it sends a wire saying that print is already loaned somewhere else. That upsets the apple-cart; it is necessary to have *that* print to complete a sequence, or round out a period. Where to find another one? Then the fun begins. The Museum does not know, but refers you to Mr. Jones, who says his father's collection was given to the Brown Society, who can't locate it at the present time, but refers you to Mr. Black, who, after ten days delay in replying, says he remembers just the print you refer to but has no idea where it might be. Then, all you can do is to alter the scheme of that part of the exhibit to accommodate the absence of the desired photograph.

It is not always as tough as that, but some occasions are tougher. Perhaps the most exasperating response comes from individuals who would really like to forward their material, but, for a variety of reasons—sentimental—health—available time—prior commitments—are obliged to decline. And there you are with a vital spot to fill, knowing just what should go in that spot, knowing just where that material lies—and tormented with

the knowledge that it reposes inactive in someone's library or storeroom and you can't have it.

Yet, in some miraculous way, exhibits gather and grow, and are usually complete and open on schedule. A trained museum executive, especially in the domain of the more conventional arts, will have a somewhat simpler time of it than an interested artist-organizer working on a particularized undertaking such as a photographic exhibition. A far-reaching cooperation is essential in every phase of the work. And, as any exhibition director must make *decisions* and adhere to certain standards, he knowingly extends his neck for the ever-ready axe. As that is the inevitable exposure, the timid should not assume the responsibility of organizing an exhibition.

All of the above is merely a "background" on which to present thoughts and descriptions of the "Pageant of Photography" in the Palace of Fine Arts of the Golden Gate International Exposition. I do not want anyone to imagine that the collection was easy, nor do I want anyone to think I assume the entire responsibility, praise, or blame. In the first place, we must thank Mr. Timothy Pflueger, general director of the Department of Fine Arts for his admirable interest in photography and his desire that it be included in the Department of Fine Arts along with painting, sculpture and the Graphic Arts.

And we must also thank Mr. Kenneth Slaughter, Director of the Palace of Fine Arts, and his staff for an unfailing cooperation and understanding of the technical problems of display and installation. Without this basic assistance, no exhibit could amount to much.

The history of this exhibition is as follows: In the Fall of 1939 Tom Maloney of U. S. Camera expressed with his usual high enthusiasm his hope that we could give a great show of photography at the Exposition. This show would have been not only a collective exhibit of contemporary work, but would have been a "working" show as well, demonstrating studio and laboratory procedure. It would have been spectacular in size and effect throughout. Mr. Bertram Alanson, Mr. Maloney and I worked hard on this idea until we found that we could not secure an adequate building for the show without assuming an enormous expense. Time was also a serious factor, as the opening date of the exposition was drawing near. The idea of the large show was given up, and Mr. Pflueger offered six galleries in the Palace of Fine Arts, which was accepted as an excellent solution to the problem, although it meant reducing the exhibit to a more sensible scale.

Mr. Pflueger then appointed the following sub-committee of the Department of Fine Arts: Tom Maloney, Chairman, Dr. Grace McCann Morley, and Ansel Adams. Ansel Adams was designated Director of the exhibit, except that Dr. Morley was in full and very capable charge of the Motion Picture phase of the show. The marvelous work she has done in bringing the important early films and arranging for an educational exhibit of the "History of the American Movie" and "The Making of the Motion Picture" is apparent to all who have enjoyed the programs and displays in the Palace of Fine Arts, and at the San Francisco Museum of Art as well.

The Pageant of Photography is planned in six sections, (a gallery devoted to each section).

"Lola Montez" *Southworth and Hawes*

Daguerreotype. A fine American daguerreotype, made in Boston about 1850 by the firm of Southworth and Hawes. It is difficult to reproduce in half-tone the exquisite values of a daguerreotype, but the exceptional charm of the arrangement is conveyed.

The Pageant of Photography
Golden Gate International Exposition

"Alaska" *Bradford Washburn*

The Pageant of Photography
Golden Gate International Exposition

1. *History of Photography.*

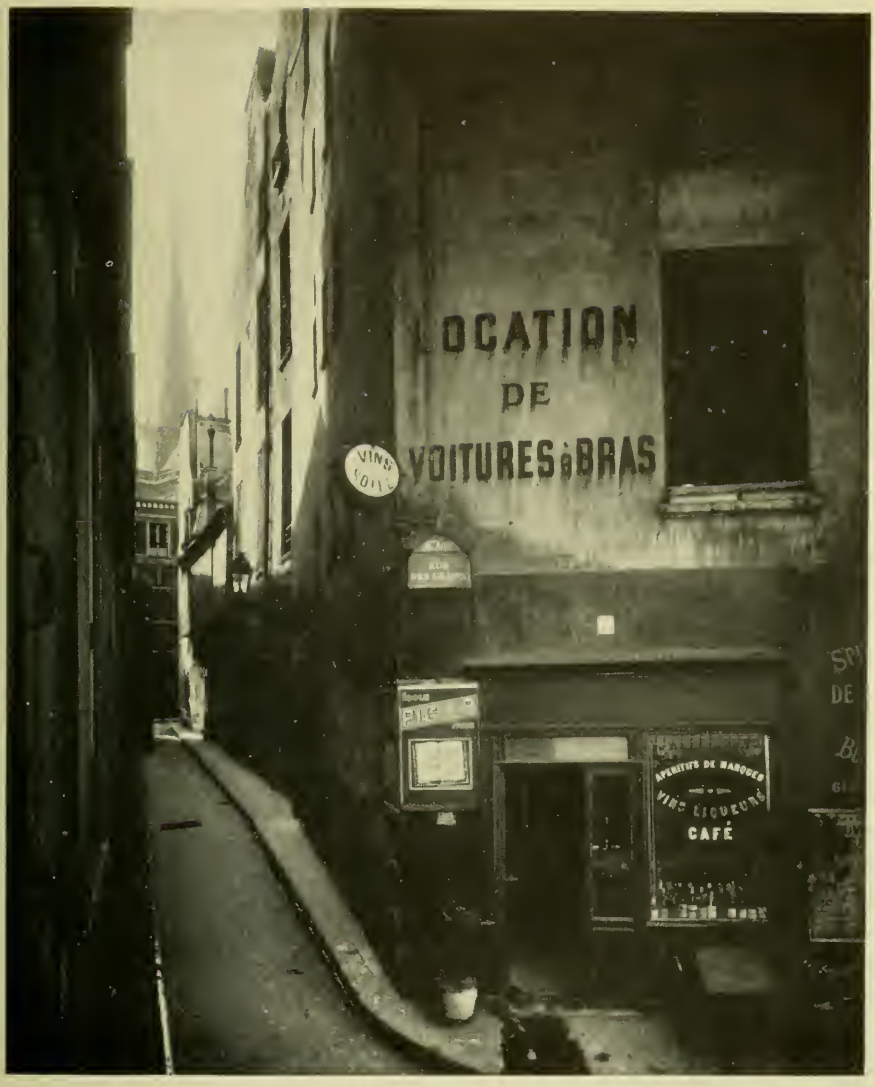
This gallery presents an excellent collection of Daguerreotypes (including two fine Ambrotypes), a set of ten prints by Alvin Langdon Coburn from the original negatives of David Octavius Hill (1840-44), a selected number of prints from the Meserve collection of Lincoln and Civil War photographs, an exceptionally fine collection of early western photographs by Jackson, O'Sullivan, Watkins, and many others, a group of prints by members of the Photo-Secession, and a series of photographs demonstrating the development of photography from the turn of the century to the present day.

2. *Technologocial Photography.*

This Gallery contains a series of spectacular large panels suggesting how photography expands our vision—the subjects are Astronomical, Photomicrographic, X-Ray, High-Speed, and Aerial. In this gallery are examples of News, Documentary, and "Reportage" photography, and a series of exquisite pattern photographs by Andreas Feininger. One wall is devoted to a display of the use of photography in color-reproduction; an original Diego Rivera painting and its reproduction by photo-lithography, including the various plates and proofs of the process.

3. *Color Photography.*

This Gallery shows a number of fine Carbros, and Wash-off Relief



"Street Scene, Paris" *Eugen Atget. 1856-1927*

Dry plate negative. One of thousands of photographs made in the early 1900's by a self-appointed documentarist of the French capital. The reproduction is from a print by Berenice Abbott of New York, from the original Atget negative. Miss Abbott acquired almost all of the Atget negatives, and has devoted herself to the preservation of his work. Her prints from Atget's negatives are highly sensitive interpretations and constitute an invaluable contribution to the archives of photography.

The Pageant of Photography

Golden Gate International Exposition

"Sierra Nevada, from the Owens Valley" — *Cedric Wright*

The Pageant of Photography
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prints, examples of reproductions, early color photographs and processes, and a marvelous apparatus designed by Dr. Clarence Kennedy for the viewing of stereoscopic photographs in large Kodachrome.

4. *Contemporary Photography—American.*

This Gallery is devoted to changing shows by leading American photographers (other than California). Among those showing are

Berenice Abbott
Farm Security Administration photographers
Clarence Kennedy
G. S. Kidder-Smith
LIFE photographers
L. Moholy-Nagy
Paul Outerbridge
Photo-League of New York photographers
Selected U. S. Camera photographs
Paul Strand
Margaret Bourke White
and others.

5. *Contemporary Photography—California.*

This Gallery is devoted to changing shows by leading California photographers. Among those showing are:

Sibyl Anikeef
Fred Archer
Edgar Bissantz
Will Connell
Imogen Cunningham
Mary Edwards
Rex Hardy
Alma Lavinson
Sonya Noskowiak
Marion Partridge
Roi Partridge
Ron Partridge
Le Roy Robbins
Peter Stackpole
Brett Weston
Edward Weston
Cedric Wright
and others.

"Landscape" *Ansel Adams*

The Pageant of Photography

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6. *History of the American Movie.*

This Gallery is devoted to an exceedingly interesting series of stills which depict the development of the American Movie. Another exhibit in the little theatre adjoining presents the "Making of a Motion Picture," which may be studied between presentations of the films.

So much for a resumé of the exhibit as a whole. If it were necessary to define the direction of photography indicated by this show, one might well say "It demonstrates 'Straight' photography in its many phases, and it reveals the development of the art from the Daguerreotype and the Hill photographs to the prent day." That implies the "leaving out" of Pictorialism, manipulated photographs, amateur work, etc., and while that is true to a very definite extent, it is not the whole story. The available space was limited, and a certain concentration was imperative on account of shortness of time. I decided to limit the exhibit more or less to the pattern of the great "photography 1839-1937" show at the Museum of Modern Art, New York, under the able direction of Beaumont Newhall. Space and time permitting, I would have designated a gallery to Pictorial photography, another gallery to amateur work, and would have augmented the technical and Advertising material to a considerable extent. Fortunately, an excellent exhibit of photography (mostly pictorial in character) is installed in the California Building at the Exposition, so this phase of the art is not neglected at the Fair.

I wish to make it clear that I was immeasurably assisted by such enthusiasts as: Francis P. Farquhar, Dr. Edward Southworth Hawes, Clarence Kennedy, Tom Maloney, Beaumont Newhall, Walter Scott Shinn, Edward Weston, and others. And by the following institutions: The Albright Art Gallery, Buffalo, The Astronomical Society of the Pacific, H. S. Crocker Company, Farm Security Administration, Washington, The Museum of Modern Art, New York City, The Newark Museum, The Photo League of New York, U. S. Camera and others.

I believe that this exhibition justifies all the labor involved, and I also believe that every photographer will benefit from a careful study of its contents. Above all, it clearly indicates that Photography is inevitably established as a most important medium of communication and expression.

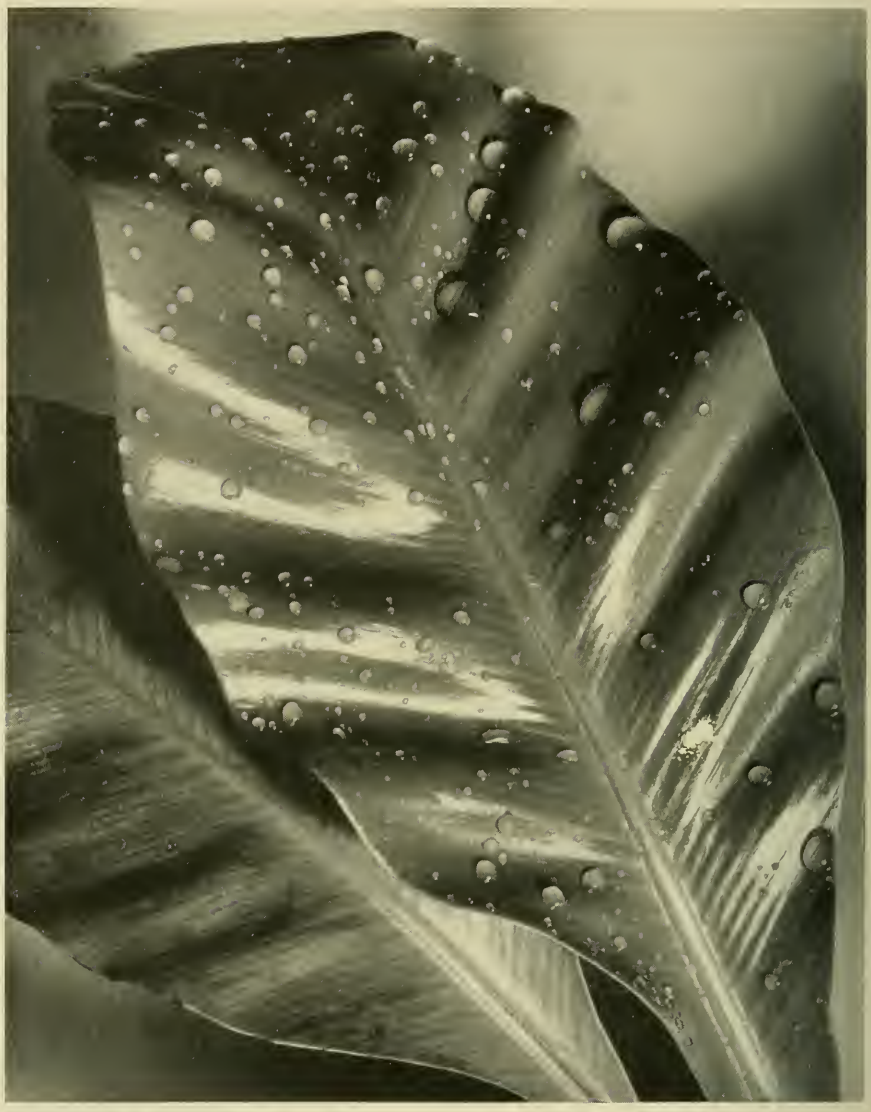
I am pleased to announce the publication of a handsome catalogue-book of the exhibit, containing more than fifty fine reproductions, and text by Beaumont Newhall (Photography As An Art), Ansel Adams (general introduction), Dorothea Lange (Documentary Photography), Moholy-Nagy (The New Vision), N. U. Mayall (Astronomical Photography), Paul Outerbridge (Color Photography) and a Statement by Edward Weston.

While this book is based on the exhibition as a whole, it will serve as vastly more than a catalogue, as it contains reproductions of many of the greatest photographs both of the past hundred years and of our own time. It will contain 48 pages, be of the same size as U. S. Camera magazine and will be available by the time this appears in print.

"Child Portrait" — *Mary Edwards*

The Pageant of Photography

Golden Gate International Exposition



"Leaf Form" *Andreas Feininger*

The Pageant of Photography

Golden Gate International Exposition

Practical Wash-Off Relief Printing: The Matrices

William Saunders

LET us assume that you have a set of balanced separations made either directly from the subject or perhaps from a Kodachrome, and that you wish to make from them a washoff print. You will have, of course, the directions printed by the Eastman Company, and perhaps a repeat of them in some one of the books written primarily for the carbro worker. You will also no doubt have a lot of rather manifest difficulties. Here are a few of the tricks that will smooth your path, for in reality the process is quite simple, and unless one is striving to falsify a commercial subject it should offer little difficulty.

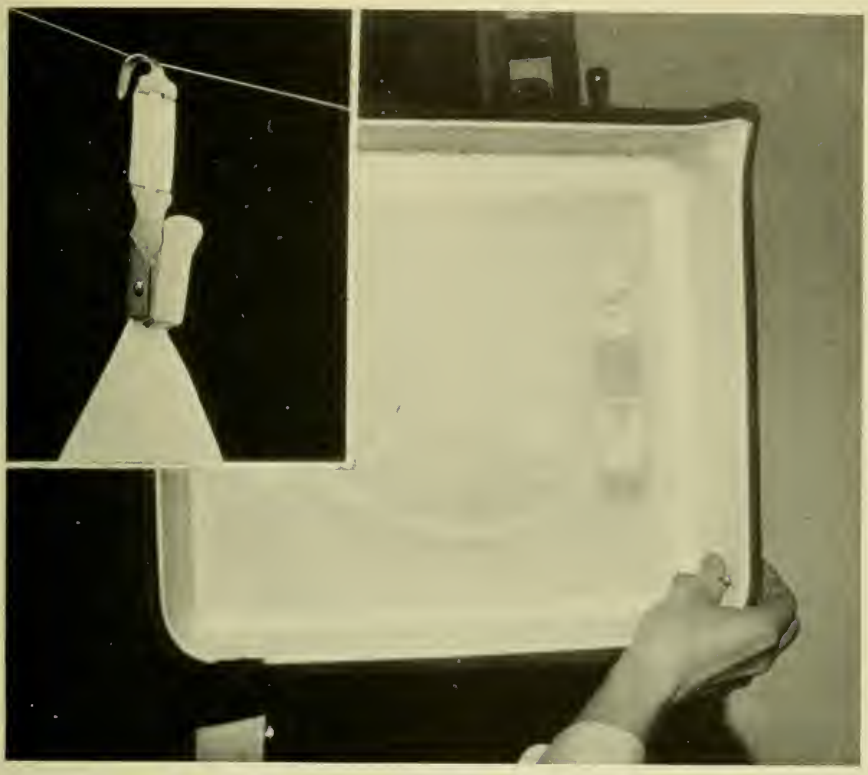
Place the red filter negative in the enlarger and project the image on a strip of film, giving exposures of say 20, 30, 45, 70 seconds in the same manner that one makes a test strip in black and white. Develop this in the developer to be used, wash briefly, stop, bleach, wash-off, fix, rinse, and place in the A dye bath for a couple of minutes. Then rinse in ½% acid and lay out on a white ground to inspect. With a little practice it is relatively easy to tell about how much coverage is necessary in a print. For example, a white should show just enough coverage so that if one scratches the relief surface with a fingernail a light line appears. A face should show only enough in the blue printer to hold the modelling with a very slight deposit over the highest lights on the flesh. Other areas can be easily judged if one stops to think about the amount that should appear, but this choice is without doubt the most difficult step in the whole process. After several dozen mats (short for matrices) one begins to know about what to expect, but at first all one can do is to make a shrewd guess. Remember, however, that the tendency is to overexpose—and this is ruinous to the purity of the color in the final print.

Before leaving the subject of the test it is imperative to warn one against fog. Whereas the test may be rushed through in fifteen minutes, using strong bleach, quick wash, etc., it is very important that it be not handled differently than the reliefs as to exposure to the safelight. I have found personally that an OA safelight, such as is safe for paper, fogs the daylights out of wash-off relief, in spite of words to the contrary. If this happens, the amount of deposit on the test is increased over that on the final mats with the result that the final mats are hopelessly underexposed with all the gelatine washing off the highlight area, completely stripping the detail. A ruby bulb wrapped in a towel and put about eight feet away is about enough light to see by, and is perfectly safe. A sure test, however, is to note the way the emulsion acts in the hot water. If the surface just seems to dissolve into the water as a yellow milkish substance the mat was not fogged, but if it comes off in dark, skinny, slimy patches there is proof that there was enough fog so that the exposed silver tanned the gelatine at the top, and no doubt that the highlights on the back side were grayed over when the relief was inspected.

Having run our test and decided our exposure, we expose the mats, calculating the other exposures so that the top, or next to top, step on the paper wedge will be balanced. Which step is chosen makes little difference if the negatives are anywhere near in balance, and depends theoretically on the lighting of the subject and of the wedge. In Kodachrome work it is important to choose a suitable step in the wedge for as the wedge is added in the separation it bears no relation to the subject itself. In any case the step chosen should be about the same density as the highest unblocked lights. If a densitometer is not available it is not difficult to find the correct exposure by the use of a hard grade of Azo paper, using trial and error, until three exposures are found that, developed together in the same tray for the same time, give the identical shade of gray on the desired step of the wedge. Don't try to guess: you haven't a Chinaman's chance; and if the negatives are such that one matrice requires more than twice as much exposure as another you will be happier if you don't try to make a print at all.

After the matrices are printed for the correct times, as calculated by the test and the factor derived from Azo prints, the rest of the mat making becomes a snap. Place the developer in three cups, one third in each cup, and place the cups next to the trays. Have bleach and a good stiff short stop available in buckets; also, have water heating if there is not running hot water nearby. And don't forget that you are going to need hypo (the F5 is now recommended) and a thermometer. Dry the trays (they must be the same size as the mats to be made) and turn out the lights. Clip a ten cent X-ray clip (Eastman) to the upper right hand corner on each mat so that the little hook curls up when the mat is laid face up in the tray. Put the mats in the trays, trying to handle them in such a manner that the emulsion side is always facing the towel-covered ruby globe.

Start the clock and pour the developer over each mat. That shouldn't take more than ten or fifteen seconds and you will equalize for the difference in starting time when you put in the short stop. Develop five minutes in DK-50 or, if the negatives are flat, in D-11. Rock the tray



Upper left, the X-Ray clip. Lower right, the X-Ray clip in use.

slowly and rhythmically. Empty the trays, hooking your thumb on the little clip which prevents the relief from sliding out of the tray. With a little practice you can dump trays as big as 11x14 in your sleep with one hand. This is infinitely superior to the old system of taking out the relief and then emptying the tray, as the relief does not get a chance to be scratched; and, besides, the former method is so slow that it is impossible to handle three reliefs at a time, especially in the hot water step. After development, pour in a couple of doses of stop and start washing. You can now safely take that towel off the red light. If one has three hoses, the job is easier as one hose is allowed to spill into each tray, the trays being shaken and emptied continuously. Having only one hose or a bucket and dipper, the right hand shakes and empties while the left plays in the hose, thus keeping everything well agitated. Ten minutes is enough since the stop helps to prevent the sodium carbonate in the developer from retarding the bleach. After washing, the bleach is put in and agitated for four minutes. After a moment you can snap on the white light. Empty the bleach and pour in each tray hot water the temperature of which has been carefully checked at 125°. The next four minutes will be somewhat of a nightmare, so it is best to have a helper the first time, especially if

one is not particularly ambidextrous, or if the trays are 11x14. A dipper for the hot water is also a help.

After four hot washes on each relief, pour on the hypo quickly, agitate a minute, and dump. You will find it rather pleasant to be able to catch a breath while the reliefs are washed for about five minutes, agitated as before. For a final rinse use 2½ drams of formaldehyde* in a quart of water; and, after a moment in this, hang the mats up to dry, using a wooden clip on each corner and two on the bottom corners. Small bits of foreign matter may be swished off by use of a baby's ear syringe** loaded with the formaldehyde solution, and particularly stubborn ones may be removed by the use of a large Windsor and Newton brush** well moistened and used deftly. It is well to sponge the backs with a viscous, as uneven drying caused by drops on the back has been known to crack the thin film of gelatine on the front side.

You will be pleased, now, to note your clock and realize that you have a complete set of mats but thirty minutes or so from the time you started the development.

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* The formaldehyde gives additional hardening to the matrices which is a good safeguard, especially if one intends to brush dye out locally before transfering.

** These instruments both have other important uses in the dyeing process and should be in your studio.

Figurines As Teachers

William S. Davis

Part VII Focusing- Its Effect Upon Image Quality

THE old-time photographer would have thought it almost inconceivable that anyone could use a camera for years without ever seeing the image formed by the lens until it had been permanently recorded in negative form. Yet this is undoubtedly the case at the present day, when many photographers depend wholly upon instruments focused by means of a distance-scale or range-finder. This condition holds good for all roll-film cameras with the exception of those of the reflex type and, for practical purposes, the very efficient miniature twin-lens equipments, such as the well known Rolleiflex and Rolleicord cameras, wherein a duplicate lens focusing in unison with the "taking" lens supplies a full size visual image, right side up. In general, users of cameras designed especially for plates, cut film and film-packs have available regular focusing-screens upon which the image may be studied at leisure whenever the instruments are used on a tripod.

Figure 1

Figure 2

While all types have their special advantages under certain circumstances, the point I'm getting to is that whether a person depends upon some mechanical means of determining the proper focus or employs the visual method it is of the greatest practical value to be familiar with the action of the lens at different size stop openings when the subject includes material on different planes at relatively close range. Moreover, it is worth while to know how local and general diffusion affects the character of the rendition from the pictorial standpoint as well as how much depth of focus (clear rendering of objects at different distances) can be expected at a given stop opening.

Such knowledge is best obtained by making a series of systematic tests, and for this purpose an instrument with a focusing-screen is most convenient for direct visual observation of lens action. However, with ordinary roll-film cameras it is usually possible to open the back and fasten in place temporarily against the film guides a piece of fine groundglass upon which the image may be viewed. Failing even this, one can at least make a series of exposures with the lens set for different distances and at different openings. A set of prints of these tests with accurate data on the back of each will prove a valuable source of reference. The details to take note of, whatever type of camera is employed, are: Focal length of lens used (since the depth of focus varies with the focal length when a stop of any given "f" value is used), the exact distance focused upon, distance from lens to principal objects that are nearer than the infinity point or plane beyond which everything is considered to be in good focus, and, finally, the size stop used in each test. Depth of focus tables are, of course, a very useful source of information as to what stop is needed to bring into good focus simultaneously two objects at different distances from the lens, but only actual test exposures can furnish visual evidence of the effect upon the image of having objects in some planes more or less out of focus,

a condition that skillful workers generally recognize as frequently beneficial when the degree of diffusion is not overdone. A sharply focused nearby object will, for example, stand away better when the material in the background is in some degree diffused than if both are equally well defined. But when the diffusion or blur is excessive it may defeat the purpose intended by attracting attention to the out of focus details, particularly where these exhibit considerable tonal contrast.

The illustrations accompanying were made to show the influence of controlled definition upon the character of the image. The "set up" comprised the figurine—placed 19 inches from the lens of 7½-inch focus—and a background made up of drab mounting stock with loose folds of tissue paper draped at the sides, located 10 inches further from the lens than the figurine. In other words, the principal object was approximately two-thirds the distance from the lens as the background.

Figure 1 illustrates the very obvious mistake of focusing upon the background without regard to the material nearer at hand, thus causing the latter to be much blurred. While there is no excuse for making this error when the image is visually focused or the distance for a scale setting can be properly measured beforehand, nevertheless, mistakes of a similar nature are not infrequently made when making hurried snapshots of nearby objects and the distance is guessed at. This print also shows what may be expected when a close-up object is photographed with a box camera of the fixed-focus pattern and no supplementary lens used, the amount of blurring varying, of course, according to the closeness of the object and the size of the lens stop, for as is well known, the depth of focus increases as the size of stop is reduced. Such a form of differential definition produces the curious effect of seeming to bring the sharp background into a nearer plane than that occupied by the blurred object, thus destroying the suggestion of normal aerial perspective.

Figure 2 represents the effect of sharp definition in both figure and background. Owing in part to the full play of light and shadow giving the maximum degree of modelling or roundness in the figure, the latter stands clear of the background very well, though close inspection shows that the tip of the right elbow is seemingly in contact with a fold of light drapery in the background, instead of actually being well separated from it. By the way, it may not be out of place here to recall the point that to obtain good definition simultaneously in the nearest and furthest parts with the least amount of reduction in the size of the lens stop, what is sometimes called "split focusing" should be adopted—i.e. a plane focused upon, with lens wide open, between the nearest and furthest objects that are to be brought into focus, after which the lens opening is gradually reduced until the desired definition is obtained. The spot first focused upon should generally be about one-third of the way beyond the near object and that furthest removed, rather than mid-way between.

Figure 3 illustrates quite effectively the result produced by focusing upon the figure and allowing the background to go out of focus. The diffusion of details in the background enhances the feeling of space between it and the figure, as is evident by comparison with Figure 2. Another interesting comparison may be made with the effect in Figure 1, where the

Figure 3

Figure 4

relative amount of diffusion is similar, but "what a whale of a difference" it makes which part is focused upon! In a composition showing a number of objects at different distances from the lens, many degrees of diffusion in one image may be obtained by such differential focusing.

Figure 4 represents the effect of equal diffusion throughout, being in fact a print from the same sharply focused negative as Figure 2, but with a piece of plain glass interposed between negative and paper during printing to diffuse the image. Many methods have been evolved for the production of general diffusion either at the time of making the negative or when printing by contact or projection. A suitable amount of such diffusion is sometimes helpful to the presentation where partial suppression of minute detail or a suggestion of vibratory atmospheric quality is desirable. but it cannot increase the feeling of separation between near and far parts as does differential definition. It may be added, however, that the latter can include slight softening of the best defined area.

To bring out in the small halftone cuts the effects produced by controlled focusing, I deliberately emphasized the variations in definition when preparing the negatives for this series. In ordinary practice it is often better to work for more delicate transition, since diffusion which is so slight as to be almost imperceptible to the eye when a print is held at normal viewing distance will yet exert an influence upon the rendition of the subject. In these notes I have omitted mentioning the size of lens stops employed for fear it might prove somewhat misleading to anyone working with objects at greater distances, since the amount of diffusion, or *per contra* the depth of sharp definition, is dependent not alone upon the "f" value of the stop employed, but also such other factors as focal length of the lens, nearness of the nearest object, and the separation between it and others at a greater distance.

Strive For Dynamic Shadows

Bernard G. Silberstein

HAVE you ever noticed how quickly a picture with strong contrasts and crisp blacks and whites will catch your eye? It gives a photograph the punch that makes it stand out over other pictures nearby, and it fills those amateurs who haven't mastered the technique of "dynamic shadows" with a longing to go out and achieve the same striking results.

Pictures of this type are not difficult to create. There are certain basic rules which anyone can follow with a reasonable expectation of success, some of which you may already be familiar with and others not in your photographic tool kit. I hesitate to skip over any of them for fear that they might be the ones that you aren't taking seriously, and so I'll have to ask the indulgence temporarily of the more advanced amateurs.

Let's go down into the darkroom first, and while it really is putting the cart before the horse, there may be some negatives that you now have which could be reborn, and instilled with Mortensen's "command to look."

Figure 1

Figure 2

Figure 3 *Bernard G. Silberstein*

One of the most important phases in the making of dynamic pictures is in the printing process itself. Chemicals are inexpensive and my number one suggestion is that you use fresh paper developer every hour or two at the most. A print that you might make at the end of several hours from the same negative that you printed when the developer was fresh will usually be entirely different in appearance. The original blacks have now become muddy greys and the picture has lost its snap. Too many photographers try to economize on their paper developer and as a result turn out

pictures with poor print quality, so that both paper and developer are virtually wasted. Fresh developer and the right contrast of paper are two of the best means of avoiding print failures and they can't be emphasized too much. Be sure that you have a paper with sufficient contrast, and it pays to experiment with several different contrasts before making the final print.

The only other phases of dynamic shadows controlled in the darkroom are "shading" and "flashing," often collectively referred to as "dodging." You all know that shading means shielding certain portions of the picture in printing while you darken other portions. It is an obvious method of centering the interest and keeping the eye from wandering out of the picture. There are various devices on the market with different shapes that you can use for shading but often a number of pieces of cardboard cut out in various shapes such as straight edges and other pieces with various degrees of curvature will serve the purpose. This is one method of introducing interesting shadows, and I use it in most of my prints to keep the eye within the picture. "Flashing" is the process of removing the negative from your enlarger and letting the stronger light pass through to the sensitized paper. If you want to obtain particularly dramatic effects, flashing is the answer to the problem because it enables you to "spotlight" the center of interest and completely print out undesirable portions of the negative. I used "flashing" on either side of Figure 1 to make the framing of the picture more effective.

Next, we enter our photographic studio to take these dynamic shadow pictures, and in the case of all of the illustrations that I have included, our studio will be the streets and byways of an interesting old town in Mexico. I have gradually trained myself to always be on the alert for unusual shadows whether they be on the pavement or the walls of buildings and it is essential that you become more conscious of shadows if you are to discover the right material. The longer the shadow, the more interesting its pictorial effect. Naturally the higher the camera position, and the lower the position of the sun, the longer the shadows will appear on the print. It is advisable to take an electric exposure meter reading of the shadows and set your camera shutter accordingly. If you expose for the highlights only, you will lose all detail in the shadows, whereas the latitude of most films is sufficient to take care of the highlights when you base your exposure on the shadows.

As to the best camera position so far as the position of the sun is concerned, each picture should be an individual problem, and while I usually take most of my shadow pictures into the sun, there are many excellent shots that can be made at other angles. Figure 3 was taken from the top of a stairway and from the direction of the shadows, you can see that I am shooting at right angles to the sun. Figure 1 is practically into an early morning sun, the wall of the church shielding my lens from the sun. This differs from Figure 3 in that I used a Duto soft focus attachment over my lens which I often do in "into the sun" pictures for the halo effect that it produces around the sunlit portions of the pavement. It is necessary to use a higher contrast of paper for printing soft focus pictures such as this to obtain the desired rich black shadows because soft focus

Figure 4 *Bernard G. Silberstein*

has a tendency to make the blacks grey and reduce contrast generally. Figure 2 is also a soft focus example and again almost into the sun. Figure 4 is an example of a camera position with the sun at my back but taken at a sufficient "off angle" to include the shadows on the wall of the buildings.

The final consideration is the intensity of the sun and it is of great importance for this type of picture. A hazy day is practically useless for our purposes and the strong light of the tropics or of summer in the United States will always produce the best pictures.

On Salons – A. K. Aster

IN the June issue Mr. J. H. Sammis wrote a very interesting commentary on Salons from the standpoint of the exhibitor. As one who has done a large share of the mechanical work of handling three Salons which have been run by the Orange Camera Club together with the Montclair Art Museum I should like to discuss Salons from the standpoint of the management and try to answer some of Mr. Sammis's questions.

In the first place Salons are not run for profit. Unfortunately the well established $1.00 entry fee does not pay the bill, at least as far as our experience is concerned. By very careful management we have succeeded in keeping the deficit quite small, however. I should like to enumerate the major expenses in running a Salon. They are:

1. Cost of printing and mailing entry forms.
2. Cost of acknowledgement cards.
3. Expenses of judges; dinners, carfare, etc.
4. Cost of returning prints.
   a—Parcel post charges
   b—Cost of wrapping materials, as many packages need new paper, etc. Much of the original wrapping material that is usable is salvaged, of course.

(Let me say here and now that the fellows who use heavy wooden boxes or masonite sheets in which to ship their prints are of no help, as the postage bill on such shipments is from 3 to 4 times the average. With the present entry fee it is impossible to return prints insured or by express.)

5. Cost of the catalog. It is assumed that no advertisement space is sold and that catalogs are given gratis to all who submitted prints and to all who visit the Salon. We printed 2500.

The matter of the apparent slowness in returning prints after they have been judged can be explained by the fact that all the work of sorting and wrapping is done by volunteer help. These men are business men and cannot be expected to spend more than about 3 hours per evening on such work. Well, sorting about 1000 prints and wrapping several hundred packages is one h— of a job; try it some time if you don't think so.

On the matter of entry forms Mr. Sammis's comments are to the point except that we feel that gummed labels are too expensive.

Now as to hanging only a limited number of prints; we, of the New Jersey Salon Committee have had long and hot arguments on this matter but have always come to the conclusion that an overloaded gallery shows poor judgment. Two rows of prints are too much. A single row around the room is all that can be properly seen and enjoyed. The north gallery of the Montclair Art Museum is a rather spacious room but in spite of that fact we have found that about 100 prints is the limit. The accompanying illustration made by my good friend, Mr. Paul L. Anderson, will serve to illustrate this point. I might say that from our experience the judges

Good photographs should be properly displayed.

usually find it difficult to find enough satisfactory prints rather than to have to cut down their selections. In the first viewing of the 942 prints submitted to the recent N. J. National Salon the three judges only concurred unanimously on about 42 prints. They unanimously discarded about 450 prints and then studied the remainder and accepted the additional needed prints on a 2 to 1 vote basis.

In conclusion let me say that Salons are fun for the contributors but to the committee they are a splitting headache and plenty of hard work. Briefly here is what is required to run a Salon.

1. Addressing and mailing several thousand entry forms. This includes handling considerable correspondence about the Salon.
2. Unwrapping and checking several hundred packages of prints.
3. Arranging the prints in groups so that all of the entries of any one contestant are not shown to the judges in sequence.
4. Storing all shipping material.
5. Showing the prints to the judges. (This was done in a shadow box having the same brightness of illumination as the walls of the Montclair Art Museum, about 60 foot-candles.)
6. Hanging the show.
7. Sorting all remaining prints.
8. Wrapping and shipping all completely rejected sets.
9. Preparing the catalog. This means copying all prints to be used for illustrations and publicity releases as it has not been deemed safe to send out the originals.
10. Finally wrapping and shipping the prints of the successful entrants after the show is over.

Thank you and good night.

Cinema Section

Edited by

William A. Palmer

Double Exposure Effects Without Double Exposure

THE pinnacle of amateur title making is achieved when the movie maker finally is able to make a technically perfect double exposure of title lettering superimposed over a background of some sort, thereby producing an "art title." Such advanced title making, in which the lettering appears over a photographic background or decorative design, usually involves the talents of a "super" camera with provision for back-winding the film. Some ingenious owners of the common garden variety of movie camera with only one lens and one speed forward manage to contrive double exposures by taking the camera to a darkroom and there rewinding the film for the second run or second exposure. When fancy effects are made with ordinary tools, so much the better and a salute to him who does them.

For most of us who own the popular priced models, though, double exposure technique is a bit complicated for a steady method of title making and so, after one or two trials, we content ourselves with straight shooting.

There are a number of ways by which the same general effect of white letters superimposed on backgrounds can be obtained without recourse to double exposure. The most obvious one is to hand letter, in white poster paint, the words on an enlarged photograph. If hand lettering does not come easily, individual block letters may be laid over the background. Here, though, the effect on the screen is not quite the same as the usual double exposure because of the thickness of the movable letters and the shadows which they cast on the background.

A still better effect, making use of the same wood, metal, or bakelite letters, is to set up the title on a sheet of good clear glass. This glass then can be held before the camera and a background scene, either still or moving, can be photographed as seen through the glass. This is a very excellent titling arrangement if one takes care to avoid a few complications which may arise. The glass and the letters should be fairly large, so that a scene beyond will not be too out of focus when the letters on the glass are made sharp. A sheet of glass two feet by three feet and letters two to three inches high would be a good combination.

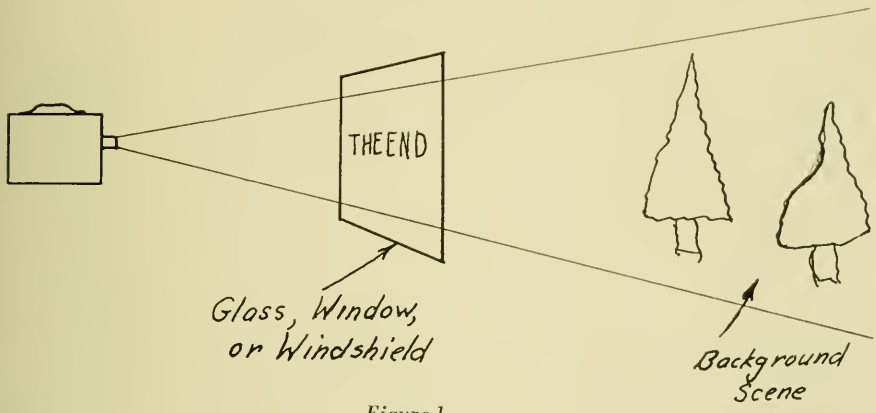


Figure 1

A natural variation to the letters-on-glass idea and one particularly suitable to a vacation film, is to fix the title letters on the windshield or windows of an automobile. The title is photographed from inside the car as it rolls along its way. In working this idea, one must be sure to have the camera on a tripod inside the car, so that there will be no relative motion between the camera and the title letters. Also the motion of the car, if the title is shot out a side window, must be very slow if the background scenery is close to the road. With a distant landscape, the rate of travel can be faster without causing an unpleasant blur. The individual letters can be fastened to the glass with rubber cement, available at all stationery and art goods stores. The cement dries quickly and when the job is over, can be removed easily by rubbing.

Because the title letters on the automobile windows will have practically no light on the surfaces facing the camera, they will appear dark or black against the brilliantly lighted exterior. Therefore it is well to arrange them and the camera position so that the letters are silhouetted against the sky. The effect, too, is usually better if the camera is placed so that the frame of the window or windshield does not appear in the field. Without the window frame, the letters appear to be hanging in space, whereas if the frame is shown, it is at once disclosed how the title was made.

Of course there is no need to limit the window stunt to automobiles. It can be worked equally well on trains or windows of hotels and summer cabins. If one's hotel room commands a good view of a city or country as the case may be, there is no reason why all the titles for that particular phase of the trip should not be made with the help of the window and rubber cement.

In lining up a series of titles with movable letters, especially when they are being fastened to glass, you will find it a bit difficult to arrange the letters in a nice straight line. To solve this problem, fix a stick of wood with rubber suction cups as shown in the illustration, Figure 2. The letters can then be set up along the top of the stick which will hold them until the rubber cement has set. In using the rubber cement, it is well to apply it to the back of the letters and allow it to dry a bit and become "tacky." In this condition it should adhere to the glass immediately when it is pressed against it.

While on the subject of title letters on glass, it is well to mention the

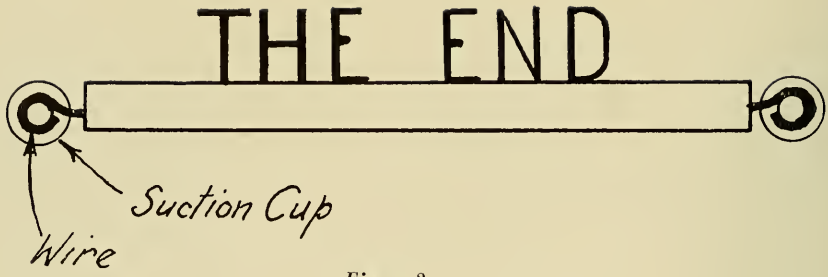


Figure 2

beautiful effects which may be obtained in the lighting of the letters themselves with just a plain dark background. By placing strong lights at very oblique angles slightly in front of and behind the glass and placing the glass on an angle with the camera as shown in Figure 3, the letters will take on a translucent appearance. The best background is a black card or cloth when shooting in monochrome, but if color film is used any colored poster board or textured cloth may be used. Because the background is placed considerably behind the plane of the letters, the background will be slightly out of focus. The lights placed at an oblique angle as shown in the sketch need to be watched lest they shine directly into the camera lens or do so indirectly by reflections from the glass surface. Usually a slight shifting of the lights will "kill" reflections and the direct light can be screened off by "gobos."

The neatest arrangement for double exposure title effects without double exposure, but one requiring a more elaborate set-up and preparation, is shown in Figure 4. This stunt makes use of a partially silvered mirror, sometimes dubbed a "magic mirror," an article in much favor at the present time with builders of window displays. The magic mirror is a sheet of glass which has been given a very light deposit of silver so that it will transmit about 50% of the light and reflect 50%. They may be obtained from almost any mirror silvering establishment but they must be handled very carefully for they cannot be given the usual heavy protection coat of paint on the back.

The camera and mirror are set up with the silvered surface toward the camera and inclined at a 45 degree angle to the axis of the camera lens. In this position, the camera has a double view. It can see straight ahead through and past the mirror to a title card and also it can see downward by reflection from the mirror to a background placed on a horizontal plane. If the illumination on the two subjects is equal, (assuming the mirror is a 50—50 one) the camera will see both subjects as in a true double exposure. Ordinarily, for the best effect it is desirable to have slightly more light on the title card (which is black with white letters) than on the background so that the letters appear clearly over all background detail.

The matter of lining up the camera, mirror and the two subject planes is a tricky one but can be done with a little patience. A magazine camera with a focussing or "dummy" magazine or a super camera with parallax-free focussing device will be the easiest to use. The finder is, of course, useless for this job. However, most ordinary cameras can be lined up by viewing the image in the

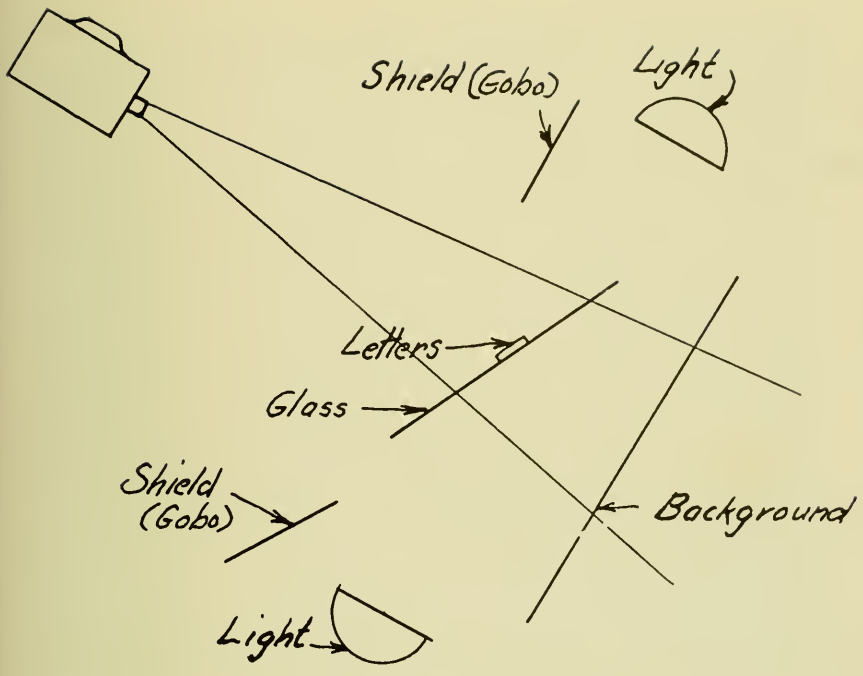


Figure 3

lm gate with the spring motor run down, the shutter open, and the tension ate removed. A piece of frosted leader film in the gate will show the image. stand of some sort should be made to hold the various parts so that once the lignment is made, the camera can be removed and replaced to occupy the ime position.

The background in a horizontal position will have to be placed with the p toward the camera to appear right side up. It will also appear reversed om left to right, so if a photographic enlargement is used, it should be made ith the negative reversed in the enlarger.

Now here is the great advantage of this arrangement if you are finally ble to get a proper set-up: The degree of illumination on the two subjects will bsolutely control what the camera sees. It is, therefore, only necessary to put heostats on the two groups of lights to make the most professional fade-in and ade-out effects of letters and backgrounds. For example, the usual procedure ould be to have both rheostats down so that all lights are off. The camera is hen started and the lights are slowly turned up on the background—a perfect ade-in and the camera will photograph background only. Then the rheostat ontrolling the title card lights is turned up—presto, a perfect fade-in of letters uperimposed over the background.

The lighting of the two subject planes can be conventional, but one must e careful to shield the light from one subject so that it will not strike the

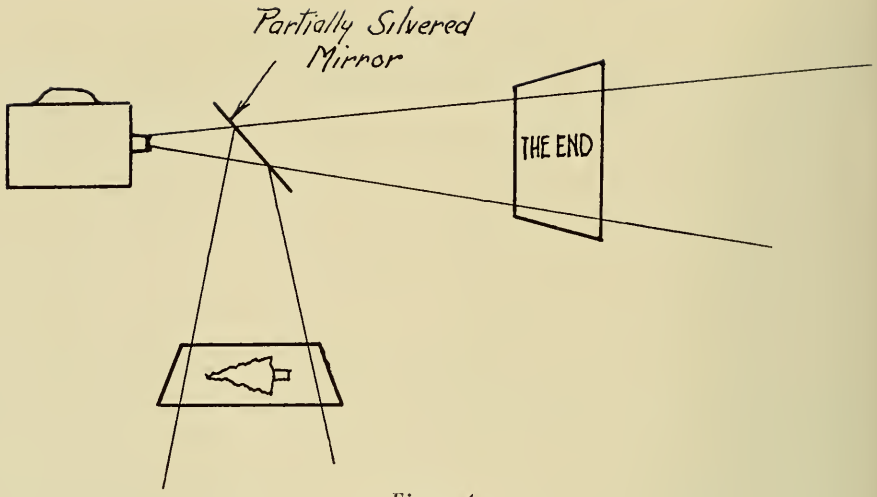


Figure 4

other. Also it is necessary to shield the mirror from direct light. The mirror should receive light reflected from the title card or the background only.

This arrangement with a partially silvered mirror is ideal for the use of regular type which is fixed to be photographed directly. The idea of using the regular type font to be photographed was presented and discussed in detail in the September 1937 issue of CAMERA CRAFT. Briefly, the procedure is to get a complete font of type and prepare it by first painting all the pieces a dead black. Then paint the surfaces of the letters aluminum as if they were being "inked" with aluminum paint preparatory to striking an impression. The type so prepared can be set up on a piece of black velvet and illuminated obliquely, whereupon only the highlighted aluminum faces of the letters show to the camera. Now since type is designed for printing, it is made in reverse so that for the camera to see it correctly it must be photographed through a mirror. This is exactly the condition we have in Figure 4. When using this plan with prepared type the positions of the title lettering and background are switched. The type is placed horizontally below the "magic mirror" and the background is placed in line with the camera lens. In this case the mirror "rights" the type to appear correctly and the background appears normally. The background therefore does not have to be enlarged with the negative reversed in the enlarger.

There is a great advantage in using regular type, for one can select any number of distinctive fonts and get an entirely professional appearance. Furthermore, the type is actually much easier to set up than the usual block title letters. Each type piece as it is placed in composition is placed right against its neighbor and each piece being a neat rectangular form will line up with little effort. By photographing the type directly, one eliminates all the main fuss of inking a press, adjusting it for good impression and then cleaning the type and press when the job is done.

"Cabbage" *C. Stanton Loeber, San Francisco*
First Award—Advanced Class

■ In certain respects this is a rather unusual photograph. Ordinarily subject matter such as this would be photographed under a fairly strong angular light, so that textures would be well rendered and the curving lines of the leaves emphasized to build up a well defined pattern. We think many of our readers will have noticed the widespread tendency among photographers to poke all manner of things into pigeon-holes. For example, we hear that portraits of men must be vigorously lighted, while children's portraits must have soft, high key lighting. Most of such "rules" are all right as indications of usual procedure, but they have a blighting effect on any photographer who uses them as absolute guides for his selection and treatment of subject matter. A "rule-follower" would have passed this subject up, given the foggy day conditions under which it was photographed. But Mr. Loeber has learned to let the intrinsic qualities of the subject matter and his feeling for them act as his guide. Consequently, because he was free of preconceived ideas of how such material must be handled, he was able to "see" and appreciate the possibilities of a picture based upon the beautiful tonal harmony inherent in the short scale of silvery gray tone which this subject presents. This may not be a great picture, but it contains the basic elements of greatness in that the photographer was able to feel into his subject and appreciate the essential qualities on which his picture should be based.

Data: 3¼ x 4¼ Graflex with 6″ Tessar lens; one second at f:11 on E. K. Panatomic X; 7:00 a.m. in summer with very dense fog; 13 x 16″ print on Defender Velour Black.

"Dust Collector"
Robert L. Edmonds,
Rosemead, Calif.

Second Award

Advanced Class

■ This is a good example of how interesting arrangements may be picked out of industrial plants. There has been considerable controversy about the amount of over correction which is artistically permissible with such material. All will agree that a fairly deep sky is called for so that the aluminum painted forms will stand out against it. But a "deep" sky does not mean a solid black one. Practically speaking, the photographer should think not so much about the actual tone value of the sky, but should remember that he must keep the sky looking *luminous.* A black sky is absolutely dead and that is why it is objected to. Notice that luminosity has been retained in this sky even though it is dark enough to give ample contrast with the foreground objects. Unpleasant dead black skies are usually the result of a red filter *combined with underexposure.* A light red filter properly handled should not take the sky tone down much darker than is seen here.

Data: 11 x 14" print on Agfa Brovira glossy.

"Winter Fantasy"
William Hart,
Pasadena, Calif.

Third Award

Advanced Class

■ The attractive qualities of this picture lie almost entirely in the glowing translucence of the snow covered bush, with the cast shadows acting as a balancing item to complete the composition. We are not sure that Mr. Hart's title is intended to call attention to the fact that the shadow suggests an animal form. Probably he did not intend it to, but since many photographers do sometimes direct attention to this aspect of shadow form, it might be well to briefly discuss that tendency here. Our feeling is that unless the shadow is the main object of interest and that unless the theme of the picture is definitely humorous, it is almost always a mistake to direct attention to such a condition. The reason is not hard to find and is well illustrated in the present print. If the title points to the shadow, we are directing attention away from the real interest of the picture and thus violating a most fundamental concept. Further such accidental qualities in a shadow have no lasting interest value. They are too trivial to build a substantial picture upon.

Data: 9½ x 11½" Bromide print.

Fourth Award

Advanced Class

H. Cooper,
Pasadena, Calif.

■ Most of our readers will have seen one or more of the extensive series of pictures made by students of the Art Center School, which utilized a figure, a large drape, and in some cases the dead tree which is seen here. A study of these pictures should prove very instructive to the photographer who is interested in working with the figure. They reveal a mature artistic understanding of ways in which the figure can be handled to maximum advantage. Notice particularly how the use of the two props mentioned above add to the effectiveness of the pictures by offering opportunity to get away from a too literal rendering of the figure; by building up an intense feeling of movement through the convolutions of the drapery and the play of the wind through it; and by relating the figure in interesting fashion to forms which echo its contours and volumes; echo, in the same spirit in the case of the wind-blown drapes, and in a contrasting spirit in the case of the tree. This is a good example of the work but not quite up to the best in the series. So little is seen of the tree that its presence will probably be rather puzzling to those who have not seen any of the other pictures. We wish the drape could have completed itself within the picture space, for there is now a slight tendency for the eye to follow it out at the right.

Data: 10½ x 13½" print on Defender Velour Black S-22 Glossy in E. K. D-72 3:1.

Fifth Award

Advanced Class

"Frozen River"
Paul Wall
Chicago, Ill.

■ Mr. Wall has found a very interesting bit of shore line, and has photographed it quite successfully. The heavy trunk of the tree which runs out of the picture at the top so abruptly is unfortunate in two respects. It tends to carry the eye out of the picture and its feeling is contrary to the smooth graceful curves of the shore line. It is well to have some object where the tree is, to act as a center of interest, but ideally it should not reach up to the top of the print. It should be of less bulk than this tree, and should be delicate and graceful in its linear qualities. Again, imagining how things might be if the photographer could rearrange nature to suit himself, it is plain that we would like to have something to check the directional force of the shore line toward the top of the print. For example, a group of fairly close-knit bushes, not too dark in tone, which would cast a shadow over the shore line just before it leaves the print, would serve admirably.

Data: 10½ x 13½" Bromide print.

"Winter" — *Dr. Tom H. Cheavens, Dallas, Texas*

First Award—Amateur Class

■ The qualities which combine to make an appealing landscape are more often than not extremely subtle in nature. In this case the composition is made effective by the upward sweep in the foreground and by the fine space relationships between foreground, house, tree and sky. The winter mood is well caught, with the deserted house helping to suggest the deadening effect of the winter cold. Our principal disappointment has to do with the muddy tonal quality of the sky. This was apparently dodged down in tone to keep the sky from playing a too active part in the picture. We think that Dr. Cheavens is right in feeling that a brilliant sky with the present cloud forms would offer too much in the way of competition with the landscape. Once the shot was made, dodging in was the only corrective. It would be better, of course, if the shot could have been made with a fully clouded sky so that we would not need to depart so far from verisimilitude. We should not overlook the fact that this material offers a fine opportunity for another picture, quite different in feeling, but none the less effective. Imagine this scene with back lighting on a brilliant day, photographed with absolute sharpness and vivid tonal quality throughout.

Data: 10½ x 13½" Bromide print.

Second Award

Amateur Class

"Chester, N.Y."
Dr. M. J. Futterman,
New York, N.Y.

■ Dr. Futterman has done an excellent job of photographing a truly noble tree, and as such this picture is decidedly successful. We always feel that the constructive aspects of picture discussion lie in letting our imaginations play with the picture. If we visualize it in as many different aspects as we can, we are in effect gaining the same experience and practice which the photographer had in actually making the picture. In this case the principal problem concerns the relationship between the tree and the barn. It is evident that a camera position more to the left would introduce space between the barn and the tree and bring the barn further to the left in the picture space. In such position the barn would function more strongly as a balance to the tree and the present tendency for the eye to move to the left would be reduced. If space were the only consideration, such a camera angle would probably be an improvement. We do not doubt that Dr. Futterman considered this possibility and probably rejected it because from the new camera angle the landscape beyond is not snow covered and consequently does not tie in well with the feeling of the picture.

Data: 13 x 16″ Bromide print.

Third Award

Amateur Class

Thoreau Willat,
San Rafael, Calif.

■ This portrait has that pleasant quality of honesty and naturalness that is so attractive in good outdoor work. There is a nice feeling of movement in the picture engendered by the relation of the head to the shoulder line, and by the freely flowing hair. There are opportunities for slight improvement of minor details. We would like to see a little more space at the bottom so that the lace along the lower neckline of the dress would not coincide with the base of the print. As a general rule it is not a good plan to place the model directly against the background, unless the background echoes the theme of the picture, and unless the linear and tonal qualities of the background relate themselves well to the principal object. If these conditions are met, the background should then be in focus. In this case the first condition is met, since the adobe wall suggests the Spanish characteristics of the model. But the wall hasn't enough character to play its part well. A much more time-worn wall would be better. The scraggly line which runs in from the right is picayunish and unrelated to the head, and the fact that the wall is sharp at one side and out of focus at the other, would of itself defeat the possibility of making the wall function satisfactorily as an active part of the picture.

Data: 7½ x 9½″ Bromide print, sepia toned,

Fourth Award

Amateur Class

"*A Figure in Woods*"
Roland Beers,
Dallas, Texas

■ This picture shows careful forethought in both conception and arrangement. We particularly like the idea of carrying the thing through almost entirely in woods for the variation in their grain structures and textures adds much interest value to the picture. This matter of playing textures one against the other, either by similarity as is the case here, or by contrast (silk and concrete, to cite an extreme example) offer the alert photographer many opportunities to enhance the effectiveness of his pictures. As an arrangement, the picture holds together quite well. Notice in particular how the blossom at the left and the leaf at the right finish off areas which would otherwise appear as awkward passages in the composition.

Data: 4 x 5 Speed Graphic; 2 seconds at f:64 by artificial light; E. K. Super XX film in DK-20. 11 x 14″ print on E. K. Kodalure.

Fifth Award

Amateur Class

"*Barnyard Geometry*"
Jack Cannon,
San Francisco, Calif.

■ Mr. Cannon has seen an interesting juxtaposition of forms here and has done a good job of arranging them within the picture space. The frontal lighting is not conducive to a good rendition of textures, so the print is not strong in that respect. The frontal lighting introduces a further difficulty, an apparent lack of space between the wheel in the foreground and the wall beyond. A pronounced feeling of depth so that the rimless wheel would come forward and the wall recede, would help the picture considerably. Of course, the lighting which would make that possible would at the same time eliminate the cast shadow of the roof on the wall. The shadow unquestionably helps to add interest but, on a guess, we think that a version without the shadow, but with strong texture and depth might prove the more effective.

Data: Zeiss Super Ikonta C; 1/50 sec. at f:22 on E. K. Super XX in D-76; 8 x 10″ glossy print on E. K. Kodabrom F-3 in D-72.

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won prizes for their clubs in the Advanced Class: C. Stanton Loeber, for the California Camera Club; Robert L. Edmonds and H. Cooper, for the Pasadena "Y" Camera Club; William Hart, for The Pack Rats; and Paul Wall, for the Fort Dearborn Camera Club.

The following won prizes for their clubs in the Amateur Class: Dr. Tom H. Cheavens, and Roland Beers, for the Dallas Pictorialists; Dr. M. J. Futterman, for the Miniature Camera Club of New York; Thoreau Willat, for the Marin Camera Club; and Jack Cannon, for the California Camera Club.

Contributing Clubs

Amherst Camera Club (Mass.)
Aremac Camera Club (San Francisco)
Bloomington Art Association (Ill.)
Brooklyn Institute of Arts & Sciences (N.Y.)
California Camera Club (San Francisco)
Crockett Photographic Society (Calif.)
Dallas Pictorialists (Texas)
Detroit Camera Club (Mich.)
El Paso Camera Club (Texas)
Everett Camera Club (Wash.)
Exeter Photographic Society (Calif.)
Fort Dearborn Camera Club (Chicago)
Gray's Harbor Camera Club (Aberdeen, Wash.)
Kamera Kranks (Durham, Calif.)
Marin Camera Club (Calif.)
Miniature Camera Club of New York
Missoula Camera Club (Mont.)
Olympia Camera Club (Wash.)
The Pack Rats (Pasadena, Calif.)
Pasadena "Y" Camera Club (Calif.)
Photographic Society of Hongkong (China)
Photographic Society of India
Photographic Society of Philadelphia
Photographic Society of San Francisco
Portland Camera Club (Maine)
Rothschild Camera Clinic (Los Angeles)
Santa Maria Camera Club (Calif.)
Sierra Camera Club (Sacramento, Calif.)

STANDING OF CLUBS

Large Clubs—Advanced Class

California Camera Club	10
Photographic Society of Philadelphia	5
Brooklyn Institute of Arts and Sciences	3
Manhattan Camera Club	3
Fotoklub Ljubljana	2
Fort Dearborn Camera Club	1

Small Clubs—Advanced Class

Pasadena "Y" Camera Club	52
The Pack Rats	19
Signa Phi Nothing	9
E.P.I.C. Pool	5
Aremac Camera Club	4
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2

Large Clubs—Amateur Class

California Camera Club	21
Miniature Camera Club of New York	21
Detroit Camera Club	14
Photographic Society of San Francisco	10
Amherst Camera Club	9
Camera Club of Oakland	4
Camera Club of Richmond	2
Green Briar Camera Club	1

Small Clubs—Amateur Class

Dallas Pictorialists	15
Camera Club of San Pedro	6
Modesto Camera Club	5
San Marino Camera Club	5
Marin Camera Club	2

SUMMARY OF COMPETITION RULES

1. Open to all, amateur or professional, club member or non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue.

Western Amateur Camera Conclave

"The most enjoyable three days I have ever spent in the pursuit of my hobby," "Learned more in two days than in the past two years, and had a whale of a good time doing it," "That Conclave was a humdinger, be sure and do it again."

It is this sort of comment, coming from virtually every one of the 590-odd registrants which proves beyond a doubt that the Western Amateur Camera Conclave was a resounding success.

The idea behind the Conclave was that amateurs could put on a show for amateurs, which would be so good, so close to what the amateur wanted that he would respond in sufficient numbers to make the venture financially possible. Please notice that we say financially **possible**—not profitable. We emphasize this point since a few have somehow gotten the idea that the Conclave was a money-making scheme of some sort. Actually the Conclave is, and will continue to be, a strictly non-profit venture conducted by amateurs for the amateur photographer.

A few of the numerous committee members. Left to right: Clyde Woolridge, Stage Management; George Allen Young, Program; Ed Towler, General Chairman; Hal Wiltermood, Publicity; Phil Ray, Convention Manager. Oakland Chamber of Commerce.

Four members of a thoroughly distinguished group of speakers. Left to right: Ross A. Ross, Willard D. Morgan, Edward Weston and Ansel Adams. All but Mr. Morgan are standing on a foot-high platform.

No single member of the committees received a penny of expense money, in spite of the fact that several made very substantial outlays, and every committee member paid in his dollar registration fee the same as anybody else.

Thursday morning and afternoon, July 25th, the opening day of the Conclave, were devoted to Seminar Sessions. This type of meeting was designed for smaller groups than the large general lectures, so that there would be opportunity for questions and an informal discussion. Three seminars were run simultaneously, but most of them were given twice, once in the morning and once in the afternoon, so that an individual could attend almost all of them. The seminars were as follows:

Snapshot Problems and Rewards—**Sigismund Blumann.**

Paper Negative, Spotting, Working Up of Prints, Projection Control and Toning—**Frank W. Day.**

Advanced Technical Problems of Kodachrome Exposure—**Dudley Haskell.**

Make-Up—**Stanley R. Jordan.**

Photographs For Publication Purposes—**Willard D. Morgan.**

Taking The Kodachrome Picture—**Ross A. Ross.**

Print Clinic—**George Allen Young.**

Typical scene in one of the three Portrait Studios.

Fred Archer demonstrates "Basic Portrait Lighting."

Ansel Adams and Edward Weston enjoyed the floor show.

On Thursday afternoon a fleet of busses took a large number of Conclavers on a field trip to various scenic points in the East Bay.

On Thursday evening the main lecture program began with a discussion on "New Trends in Photography," by **L. Moholy-Nagy.** The evening meeting concluded with **Willard D. Morgan's** splendid lecture and demonstration on "Synchroflash Photography."

The lectures continued bright and early on Friday with **Ansel Adams** discussing the "Artistic and Technical Problems of the Photo Mural," and **George E. Stone** described his methods for "Photographing Paintings on Kodachrome." In the afternoon **Edward Weston's** lecture, entitled "Toward a Constructive Understanding of Good Photography," found a most appreciative audience, and **Fred Archer's** demonstration on "Basic Portrait Lighting" was called the "best lighting demonstration I have ever seen" by no less an authority than Willard D. Morgan.

This concluded the announced program of lectures, but at the request of Conclavers the Print Clinic conducted by **George Allen Young** was put on for a third time, and also by request, **Ross A. Ross** undertook to give constructive criticism on Conclavers projected Kodachrome slides. Ross' Kodachrome Clinic proved an eye-opener for the program committee. This was a meeting gotten up on the spur of the moment, and no request or suggestion had been made that Conclavers bring slides with them. In spite of that the room was packed and more than 500 slides made their appearance as if by magic. Needless to say, the program committee is planning for plenty of time for a Kodachrome Clinic at the next Conclave.

Friday night the buffet style banquet turned out to be the jolliest sort of party imaginable. The floor show offered endless opportunities for interesting shots. Miles of film were consumed, and before the evening was half over everyone was wading knee deep in flash bulbs.

Midway in the floor show Miss Photogenic was selected from a picked group of models, by a jury consisting of Ross A.

There were plenty of cameras at the floor show. If you look close you can see Grattan English, Jr. in front of the gang, "doing his stuff" for Life magazine.

Lovely Barbara Stahmann, of San Francisco, was selected as "Miss Photogenic." This picture doesn't do Barbara justice, but proves that she was a popular camera subject.

Our mathematician has estimated that 10,000 exposures were made at the floor show.

Ross, Hal Wiltermood, and George Allen Young. This honor went to lovely Barbara Stahmann, of San Francisco.

Conclavers were delighted indeed to welcome Grattan English, Jr., and Tatsuo Ishimoto, who "Came to the Party" for Life magazine. Their presence was a compliment from Life as to the importance of the Conclave, and gave Conclavers an opportunity to watch really expert journalistic photographers at work.

Several fine print exhibits were on display continuously. There was a One-Man show by William Mortensen, another by Edward Weston, a group of fine flash photographs collected by Willard D. Morgan, a selection of prints from U. S. Camera Annual, and a fine color show. This last consisted of the original Kodachromes and the printed reproductions from them of the 43 color scenes of the West which the Standard Oil Co., of Calif. is giving away through stations handling their products.

There were three studios equipped with lights and models available for the use of Conclavers all day Friday, and they were full of clicking shutters at all times.

Saturday was Western Amateur Camera Conclave Day at the San Francisco Fair. Conclavers' badges entitled them to numerous special camera privileges at the Fair, including front row seating and full permission to shoot to their heart's content at such attractions as the Cavalcade of a Nation, the Aquacade and the Folies Bergere.

At meetings on Friday noon and Saturday morning, Conclave expressed their enthusiasm for the party and their earnest desire that it be made an annual event. It was decided to hold the next meeting in Oakland, Calif. to take advantage of the experience gained by the committees. After next year it is planned to move the Conclave to other cities.

The Conclave has been officially recognized by the California Association of Convention Managers as the outstanding photographic meeting of the West, and future Conclaves are assured of their full cooperation.

Edward H. Towler has agreed to continue in the post of General Chairman, and while the personnel of committees has not yet been officially announced, most of these are practically complete, and already hard at work. They promise that next year's Conclave will be bigger and better in every respect. If you have any doubts about the desirability of attending, just "ask the guy who was there."

Club Notes

Forthcoming Exhibitions

First Annual National Salon of Photography, Reading Photographic Society. Address Foster E. Moyer, Jr., Exhibition Chairman, 1146 Cotton Street, Reading, Pa. Closing date September 1, 1940. Entry fee $1.00, limit four prints. September 15 to October 6, 1940.

The London Salon of Photography. 31st Annual International Exhibition. Address The Hon. Secretary, The London Salon of Photography, 26-27, Conduit Street, New Bond Street, London, W. 1, England. Closing date September 4, 1940. Entry fee 5s. September 14 to October 12, 1940.

Second Annual Atlanta National Amateur Salon. Address Mrs. George Bird, 685 Morningside Drive, N. E. Atlanta, Ga. Closing date September 9, 1940. Entry fee $1.00, limit four prints. October 1 to 20, 1940.

The 1940 International Salon of the Photographic Society of America. Address John P. Mudd, 173 Manheim Street, Philadelphia, Pa. Closing date September 12, 1940. Entry fee $1.00, limit four prints. September 25 to October 27, 1940.

XVI Salon Internacional de Fotografia, Zaragoza. Address Secretary of Sociedad Fotografica de Zaragoza, Plaza de Sas, 7, Zaragoza, Spain. Closing date September 15, 1940. Entry fee $1.00, limit four prints. October 1940.

The Photographic Salon of the Eleventh Annual Mountain State Forest Festival. Address Salon Chairman, Seneca Camera Club, Wilt Building, Elkins, W. Va. Closing date September 20, 1940. Entry fee $1.00, limit four prints. October 1 to 15, 1940.

Fifteenth Annual Salon of Photography. Address The Salon Jury, Museum of Fine Arts of Houston, Maine and Montrose Blvd., Houston, Texas. Closing date September 21, 1940. Entry fee $1.00, limit four prints. October 5 to 27, 1940.

Pennsylvania International Salon of Pictorial Photography. Address Salon Secretary, James Chamberlain, 225 N. Second St., Harrisburg, Pa. Closing date October 1, 1940. Entry fee $1.00, limit four prints. October 17 to 26, 1940.

Third Annual Tri-State National Salon of Photography. Address George D. Hedrick, 216 Eisfeld Bldg., Burlington, Iowa. Closing date October 1, 1940. October 20 to November 2, 1940.

The New York Salon of Photography. Address Salon Committee, New York Salon of Photography, 121 West 68th St., New York, N. Y. Closing date October 4, 1940. Entry fee $1.00, limit four prints. November 3 to 30, 1940.

Third Annual Berkshire National Photographic Exhibition. Address Exhibition Committee, The Berkshire Museum, Pittsfield, Mass. Closing date October 5, 1940. Entry fee $1.00, limit four prints. October 19 to November 3, 1940.

Petroleum Industry Photographic Salon, sponsored by the Photographic Society of America. Address F. Quellmalz, Jr., Salon Director, Petroleum Industry Photographic Salon, c/o American Petroleum Institute, Room 2040, 50 West 50th Street, New York, N.Y. Closing date October 15, 1940. Entry fee $1.00, limit four prints. November 9 to 15, 1940.

8th Annual National Salon of the Yonkers Camera Club. Address Hubert L. Swapp, Salon Director, Yonkers Camera Club, Y. M. C. A., Yonkers, N. Y. Closing date October 15, 1940. Entry fee $1.00, limit four prints. November 2 to 17, 1940.

The Sixth Annual National Philadelphia Salon of the Miniature Camera. Address Mr. Hans Kaden, Salon Chairman, Architects Building, 17th and Sansom Sts., Philadelphia, Pa. Closing date October 21, 1940. Entry Fee $1.00, limit four prints. November 9 to 24, 1940.

The Fourth Rhode Island National Salon of Photography. Address Mr. A. J. Vera, Camera Club of R. I., 103 Westminster St., Providence, Rhode Island. Closing date October 24, 1940. Entry fee $1.00, limit four prints. November 10 to 17, 1940.

Second Annual Deep South Salon of Photography. Address H. L. Robbins, Salon Chairman, 1412 South 15th St., Birmingham, Alabama. Entry fee $1.00, limit five prints. This is an invitational salon open only to camera clubs south of the Mason-Dixon line. November 15 to December 1, 1940.

Fourth Southern International Salon of Pictorial Photography. Sponsored by the Norfolk Photographic Club. Address Lee M. Klinefelter, 1800 La Salle Ave., Norfolk, Va. Closing date November 12, 1940. Entry fee $1.00, limit four prints. December 8 to 29, 1940.

Second Annual Boston International Salon of Nature Photography. Address Boston International Salon of Nature Photography, 234 Berkeley St., Boston, Mass. Closing date November 15, 1940. Entry fee $1.00. Limit four prints in each group, namely, Scenic Ethnological, Zoological, Botanical, Technical, but no more than ten prints from one exhibitor. December 17, 1940 to January 31, 1941.

Third Annual Southern California Photo Salon, under the auspices of the Glendale Camera Club. Address Marshall H. Myers, 809 Palm Drive, Glendale, Calif. Closing date November 16, 1940. Entry fee $1.00, limit four prints. Open to all photographers in California from Santa Barbara and Bakersfield south to the Mexican border. December 6, 7 and 8, 1940.

Annual Salon of the Photographic Society of Southern California. Address Jack Powell Salon Committee, 43 South Los Robles Ave., Pasadena, California. Closing date December 2, 1940. Entry fee $1.00, limit four prints. January 1 to 31, 1941.

The Springfield Salon (Third International). Address John Funaro, Director, 110 Rochelle Street, Springfield, Mass. Closing date December 6, 1940. Entry fee $1.00, limit four prints. January 1 to 18, 1941.

Third Annual Springfield International Salon of Photography. Address Salon Secretary, The Springfield International Salon of Photography, The George Walter Vincent Smith Art Gallery, Springfield, Mass. Closing date December 7, 1940. Entry fee $1.00, limit four prints. January 2 to 26, 1941.

Sixth Annual Des Moines International Salon of Photography. Address Walter Vittum, Salon Director, Y.M.C.A., Des Moines, Iowa. Closing date December 14, 1940. Entry fee $1.00, limit four prints. January 1 to 22, 1941.

Exhibitions

The 1940 Kodak exhibit will visit 17 leading western and southwestern cities beginning September and continuing through December of 1940. This brilliant show, which every photographer must mark on his calendar, will bring 200 outstanding salon prints in black and white and color; full-color motion pictures; lectures and demonstrations and a screen showing of gorgeous color transparencies selected from the world-famous Eastman Cavalcade of Color presented at the New York World's Fair. This is the first time these pictures have been presented to western audiences. Special sections will deal with darkroom technique, negative and print quality, choice of paper surfaces, etc. A list of the first showings is given below; subsequent showings will be listed in later issues of Camera Craft. Watch for the date in your city. Denver, Sept. 19, 20, 21, Albany Hotel; Seattle, Sept. 27, 28, 29, Olympic Hotel; Portland, Oct. 2, 3, 4, Multnomah Hotel; Sacramento, Oct. 9, 10, Senator Hotel; Oakland, Oct. 15, 16, 17, Leamington Hotel; San Francisco, Oct. 20, 21, 22, St. Francis Hotel; Los Angeles, Oct. 29, 30, 31, Nov. 1, Biltmore Hotel.

The Lakeland Camera Club of the twin cities of Marinette, Wis., and Menominee, Mich., have planned an exhibition of prints for the month of August. Details regarding exhibition date and location may be obtained from the address below. Correspondence with other clubs will be welcome and should be addressed to Louis G. England, 2001 Frederick Street, Menominee, Mich.

The Glenwood Camera Club, 3220 Germantown Ave., Philadelphia, Pa., announced that their traveling salon is almost ready to start on its annual journey. Any club interested in receiving this show or wishing to exchange exhibits should write to the address above immediately.

The great movies of the past are being shown daily at 2:30 P.M. and 7:30 P.M. in the Palace of Fine Arts of the Golden Gate International Exposition, on Treasure Island in San Francisco Bay. Visitors to the Fine Arts Palace can see these cinema masterpieces without additional charge.

A comprehensive exhibit of the work of Helene Sanders, F.R.P.S., and Thomas O. Sheckel will be on display in the galleries of the New York Institute of Photography, 10 W. 33rd Street, N. Y. City, during the entire month of September. The public is cordially invited to view the exhibit and the galleries are open daily from Monday through Friday from 9:30 A.M. to 9:00 P.M.

An exhibition of 50 photographs by Roy Pinney are being displayed during August at Haber and Fink's Photographic Salon, 16 Warren Street, N. Y. City.

The prize winning prints of the Members' Salon of the Miniature Camera Club of New York are being exhibited in the Arts & Metals Bldg., at the New York World's Fair, during August.

Announcements

The Glenwood Camera Club, 3220 Germantown, Philadelphia, Pa., have recently adopted a new constitution. It was prepared with unusual care and the group has kindly offered to send a copy to any club interested.

The Weston Photographic Society is the new name of the group formerly known as the Weston Camera Club. Communications should be addressed to A. L. Morrison, Secretary, The Weston Electrical Instrument Corp., Newark, N. J.

The Camera Club of Oakland, Calif., have decided to hold their annual Labor Day weekend field trip in the Yosemite Valley of California. The beautiful valley is ideal for a photographic weekend and the members are certain to bring home many fine pictures that will grace the walls of salons throughout the country.

The new council of camera clubs recently organized among the camera clubs of the San Jose, Santa Cruz area, will be known as the Central California Council of Camera Clubs. The enthusiasm of the clubs in this region is sure to make this new organization as nationally well known and effective as the Southern California group after which it has been modeled.

The Miniature Camera Club of Philadelphia, Pa., recently held their annual outing at Ship Bottom, New Jersey, where the members indulged themselves in sailing, power boating, aquaplaning, swimming, and many other sports to accompaniment of a steady clicking of camera shutters. This annual outing is one of the many activities that highlight the program of this fine photographic organization. Regular meetings are held the second and fourth Thursdays of each month in the Architects Building, 17th and Sansom Street, Philadelphia, Pa., at 8:00 P.M. Visitors are welcome.

New Clubs

The Central Florida Camera Club was recently organized in Winter Haven, Fla., with a charter membership of 17. Enthusiasm has been high and new members have been pouring in. Meetings are held on the second and fourth Wednesdays of each month. Correspondence should be addressed to Ralph P. Thompson, Secretary, Winter Haven, Fla.

The Chicago Cinematographers is an organization of advanced amateurs interested in motion picture photography, living principally in Chicago and its suburbs. This group is now completing its first year of activity in promoting the best in cinematography, and they are pleased to report the success of their experiment with such an organization. Meetings are held monthly. Correspondence should be addressed to the club at 6206 So. Campbell Ave., Chicago, Ill.

The Inland Empire Camera Club is a new photographic group recently organized in Spokane, Wash., for the furtherance of advanced amateur photography in both the still and movie fields. The group will be pleased to exchange ideas and correspondence with other clubs and will welcome all visitors. Correspondence should be addressed to the secretary, Mr. Jack Doyle, at the club rooms, 515 West First Ave., Spokane, Wash.

The Society of Ozark Photographers, sponsored by the Ozark Playground Association, has been organized to increase the effective use of the work of photographers in this area. Members of the Society will submit pictures on definite assignments to the Society at their offices in the Tourist Bureau, Joplin, Mo. The prints will be sent to magazine and newspaper editors for selection and payment will be sent to the owners of the prints chosen. An annual salon or traveling exhibition of outstanding pictures is also included in the Society's plans.

Contests

The Du Pont Photographic Contest, sponsored by the Photographic Society of America, is now being held weekly at the New York World's Fair. Substantial prizes in merchandise and cash are presented each week to the photographers entering the best snapshots taken at the Fair. Contests will continue until Oct. 11th, and in addition to weekly prizes, semi-final and final awards will also be made. Snapshots are defined as pictures made by a photographer who has never had a print exhibited in a recognized salon. Entries may be delivered to the Information Booth, Hall of Industry & Metals or mailed to the World's Fair Snapshot Contest, Dept. of Special Activities, World's Fair, N. Y. No entry blanks are necessary.

103 cash prizes for photographs of America's most interesting babies are being offered by "Junket" Rennet Products. Children must be under two years old and the entry blank must be signed by the parent or legal guardian. In addition to the prizes, a $50.00 cash bonus will be paid for any photograph used in the company's advertising. Closing date is Oct. 31, 1940. Write for entry blanks to Chr. Hansen's Laboratory, Inc., Little Falls, N. Y.

Weekly Camera Contests are being held at the B. F. Goodrich Exhibit at the New York World's Fair. A different subject is presented each week and awards are made on Sunday following the close of each of the twenty contests. For details visit the B. F. Goodrich Exhibit at the New York World's Fair.

The Fourth Annual Speed Flash Contest has just been announced by the Kalart Co., 915 Broadway, New York City. Any photograph taken in or outdoors with a Kalart Speed Flash is eligible. More than $500.00 in merchandise will be awarded, thirty-five prizes in all. In addition, monthly awards of a case of Wabash Flash Lamps will be made to the best pictures received during the months of August, September, October and November. The monthly winners will also be eligible for the Grand Prizes. Closing date is Dec. 31, 1940. Entry blanks can be obtained from your dealer or from the above address.

A photographic contest. "Youth in Focus" will be conducted by the magazine Friday and the American Youth Congress. The contest will offer $1550 in prizes for pictures of youth at work, at school, at play, at home, etc. For complete details write to Friday, Inc., 114 E. 32nd Street, New York City.

The San Mateo County Fiesta Amateur Photography Contest which is being conducted in connection with the San Mateo County Fiesta to be held at Bay Meadows, San Mateo, Calif., from September 19th to 22nd, will offer $50.00 in cash and $100.00 in merchandise awards in various classifications. The closing date for entries is September 10th and entry blanks may be obtained from photographic stores or from the Chairman of Photographic Contest, San Mateo County Fiesta, 72 Third Avenue, San Mateo, Calif.

Five free trips to Japan are offered as prizes in a photographic contest being sponsored by the Board of Tourist Industry of the Japanese Government Railways. The prizes will be awarded for the best pictures of the Japanese Pavilion and Gardens at the New York World's Fair. Pictures must be black and white and 5x7" or larger. Closing date is October 5th and all entries should be sent to the Japan Travel Information Office, 630 Fifth Avenue, N. Y. C.

Photographic Instruction

Oakland's popular course for amateur motion picture enthusiasts will begin its new term on Tuesday, September 10th, continuing one night each week for sixteen weeks. Classes are held at the Oakland Evening High School, Park Blvd. & Hopkins, Oakland, Calif., from 7:15 to 9:15 P.M. The course will again be directed by Mr. Virgil Muhler, whose experience and thorough knowledge of his subject are responsible for the great enthusiasm these classes have awakened among amateur cine photographers. Instruction stresses the practical side of picture taking with special emphasis on titling, editing and continuity. New equipment is demonstrated and field trips are another popular feature of the course. The registration fee is only $2.00 which entitles the student to enroll in all other Oakland Evening High School Classes. Visitors will be welcome at the first meeting. For further details phone GLencourt 6184.

Classes in the School of Photography conducted by the Chicago Camera Clubs Association will be resumed in September, with nine courses available to the associated clubs. 230 students completed these courses during the past school year.

The Department of Photography of the Brooklyn Institute of Arts and Sciences, Academy of Music Building, 30 Lafayette Avenue, Brooklyn, N. Y., announce their new classes in photography for the 1940-41 season. In addition to the usual classes well established in popularity, a new course in amateur motion picture photography will be presented by Mr. Charles H. Coles. A pamphlet completely describing these courses is available and may be obtained by writing to the above address, or by phoning STerling 3-6700.

The U. S. Camera-Yosemite Photographic Forum held in Yosemite, California June 16th to June 30th, 1940, will be repeated during September. The first class will be held from September 1st to 8th, incl., the second from September 8th to 15th, incl., and if there is a sufficient demand, a third week from September 15th to 22nd, incl., will also be given. The classes will be limited to fifteen students, and will be personally directed by Edward Weston and Ansel Adams. The fee will be $50.00 for one week, $85.00 for two weeks, and $125.00 for three weeks if the third class is held. For further details write Ansel Adams, Director, U. S. Camera-Yosemite Photographic Forum, Yosemite National Park, California.

The "Photo League." 21 E. 31st Street, New York City, announces courses in photography which will be given during the Fall. They will begin Sept. 16 and continue for 15 weeks with one evening session per week. Registration will begin Sept. 2. Three courses will be given. They are, "Fundamental Practise of Photography," a course for beginners with Kenneth Miller as instructor; "Basic Photographic Technique," a course for advanced students with Albert Fenn as instructor; and "Documentary Photography," with instructor Sid Grossman.

A series of lectures and demonstrations on synchroflash photography are now being presented by the Fotoshop, Inc., 18 E. 42nd St., N.Y.C., one of the largest New York photographic stores, and Goodspeed, Inc., 220 Fifth Avenue, N.Y.C., manufacturers of flash synchronizers and equipment. The lectures are being presented by Karl A. Barleben, F.R.P.S., and will cover the subject of flash photography completely during the summer. Further details may be obtained from either of the addresses.

The University of California Extension Division Classes in Photography, directed by P. Douglas Anderson, will begin their new term during September. Four classes will be offered in San Francisco and two in Oakland. Each class will include ten weekly meetings. Visitors are welcome at the first meeting. The complete schedule is given below.

San Francisco—540 Powell Street—Beginning dates and times:

Photography 803A, Tues., Sept. 17, 10:30 a.m.-12:30 p.m.

Photography 803A, Mon., Sept. 16, 7-9 p.m.

Pictorial Photography and Composition 807, Tues., Sept. 17, 7-9 p.m.

Photography: Darkroom Technique 808, Thurs., Sept. 19, 7-9 p.m.

Oakland — 1730 Franklin Street — Beginning dates and times:

Photography 803A, Wed., Sept. 18, 7-9 p.m.

Photography: Darkroom Technique 808, Fri., Sept. 20, 7-9 p.m.

Notes and Comments

New Products

New Agfa cameras have been announced by Agfa Ansco of Binghamton, N.Y. The Agfa Viking Cameras are available in four models with F:7.7 or F:6.3 lenses, in either PB20 2¼x3¼" or PD 16 2½x4¼". Prices range from $13.75 to $18.75. The Agfa Readyset Special is available in two models, one each in either of the above mentioned sizes, at $8.95 and $9.95. See the new models at your dealer.

The new Luxor Print Dryer, announced by Burke & James, Inc., 223 W. Madison Street, Chicago, Ill., offers a double drying surface. It will accommodate two 10x14 squeegee plates, or two 11x14 prints for matte drying. It is economical in operation, has an adjustable thermostatic control and automatic turn-off. Price is $9.75. Write for descriptive literature to the above address.

The new KA-I-KO Enlarging Frames introduced by the KA-I-KO Photo Products, 39 Bartlett Street, Brooklyn, N.Y., are available in six sizes ranging from 3x5" to 11x14" at prices from $1.25 to $2.00. The KA-I-KO enlarging frames have a rigid metal masking frame hinged onto a warp-proof masonite base which is ¼" thick. It provides an automatic ⅛" border with razor sharp edges.

The Haynes Shutter Checker, introduced by the Haynes Products Co., Inc., 136 Liberty Street, N.Y.C., is a simple device for checking camera shutter speed on shutters of the diaphragm type. It resembles a phonograph record and in use is placed on a phonograph turntable. It is made of cardboard and complete information on its use is supplied with the device. Price 50c.

New Kodascope Editor Outfits for both 8 mm. and 16 mm. film have just been introduced by the Eastman Kodak Co., of Rochester, N. Y. Units of each outfit include a Kodascope Movie Viewer, Kodascope Universal Splicer, and Editing Bracket. Price for either the 8 mm. or 16 mm. Outfit is $48.50.

Two new aids for orderly filing, the Kodaslide Compartment File and the Kodak Minifile Box, are announced by the Eastman Kodak Company, Rochester. The Kodaslide Compartment File is a neat, compact file box of black molded material, with matching hinged cover and latch. Inside are ten partioned cells, each holding twenty Kodaslides. The price is $4.50. The Kodak Minifile Box, of matching design, size, and material, is supplied with twenty-five transparent envelopes each accepting a strip of four 35 mm. or Kodak Bantam negatives; twenty-five index cards, and twenty-five guides having visible tabs. A separator fits into notches at the sides of the case. The price is $4.50. Extra envelopes are 25 for 35 cents; extra index cards or guides, 25 for 25 cents.

A new Kodak Electric Timer is announced from Rochester. It is a 60-minute timer, for A.C. only, with a neatly designed die-cast case finished in smooth gray, a large dial with easy-to-read figures, and minute and second hands. The price is $9.50.

A new F:1.9 model of the Cine-Kodak Model E has been announced by the Eastman Kodak Co. of Rochester, N.Y. This new camera will supplement the popular F:3.5 model. Some of the features of this 16 mm. Cine-Kodak include a choice of three filming speeds, a fully enclosed view finder, a footage indicator which shows at the edge of the view finder field, a long-running spring motor. Price of the new Cine-Kodak Model E with F:1.9 lens is $67.50.

The Duraline Dual-Snap Shade and Filter Holder, manufactured by Harrison & Harrison of Hollywood, Calif., offers a quick, easy way to mount filters and sunshade on the camera. Filters are snapped in place by an inner spring and the combined sunshade and filter is mounted on the lens barrel by a second snap of the outside spring. The Dual-Snap Shade is most effective when used with Harrison's Aero Lock Ring, an inexpensive adapter ring which is permanently attached to lens barrel and accommodates all Harrison Duraline Accessories in a positive lock spring manner. Prices of the Duraline Dual-Snap Shade start at $1.50. Full details are available from Harrison & Harrison.

For projectors regularly using 750 or 1000 Watt, 25 hour, Biplane lamps, the Radiant Lamp Corporation, Newark, N.J., has developed two new Biplane type lamps producing greatly increased screen illumination. The new 750 Watt lamp is approximately equal in light output to that of the regular 1000 Watt lamp, while the new 1000 Watt lamp possesses an even higher proportionate light effectiveness. Both lamps are designed to burn 10 hours, are supplied in Medium Prefocus or Medium Screw base, T12 Bulb, types. Each lamp features the "Black-Top" coating which completely eliminates upward passage of stray light from the lamp housing of the projector. There is little, if any, difference between the current loads and operating temperatures of these new lamps and those of corresponding regular 25 hour lamps. The new 750 Watt lamp lists at $4.10, the new 1000 Watt lamp at $6.00.

Two new color toners, red and yellow, have been added to the Mansfield Line of Single Solution Color Toners, according to an announcement of Mansfield Photo Research Laboratories of Chicago. Responsible in large part for the addition of these new toners to the four colors previously available (blue, brown, green and magenta) was the great demand of users for additional colors to extend the scope of work that could be performed with the Mansfield Color Print Process. This is the process which brought to amateurs the opportunity of converting black and white prints into

beautiful color prints at low expense and by simple methods. The user simply applies the desired toners directly to photographs, according to easily followed, simple directions. A working size sample of any one of the toners (blue, brown, green, magenta, red or yellow) may be obtained for 10 cents from Mansfield Photo Research Laboratories, 701 So. La Salle St., Chicago. Samples of any 4 may be had for 35 cents.

A special short adapter with built-in ejector for the new bayonet base bulbs (Mazda No. 5 and Wabash Press 25) has been anounced by the Kalart Company, 915 Broadway, N.Y.C. This short adapter automatically centers the midget bulbs for most synchronizers. It is especially recommended for cameras with built-in synchronizers such as Agfa Shur-Flash, etc. Slight pressure on built-in ejector makes it eject the bulb, preventing burnt fingers and speeding up picture taking. The price of the short adapter is 50 cents complete.

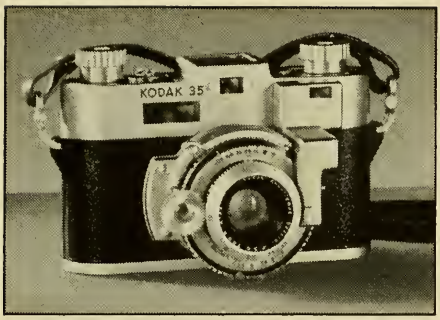
"Fluor-O-Photo" eight-tube fluorescent light, type 15

The "Fluor-O-Photo" eight-tube fluorescent light, type fifteen, has just been introduced by Bardwell & McAlister, Inc., of Hollywood, California. This new lamp has been tested and approved by lighting engineers and practical photographers. A special counter-balance stand makes it easy to raise or lower the light to any desired height. Accessories available for this unit include a low arm adapter called the "knee bracket." With this accessory the light may be operated from a range as low as 2 feet to a height of 5 feet. Bardwell & McAlister products which include the well known Baby Keg-lite, Foco Spot attachment, and Dinky Inky Spot Light are all distributed by the Eastman Kodak Stores. The Eastman Kodak Stores, Inc., 643 So. Hill Street. Los Angeles, Calif., will be pleased to supply those interested with descriptive material on the items mentioned above.

Victor No. 66 Ejecting

Among new offerings in the Victor line of photographic lighting equipment are the Midget Flashlamp units. There are three reflector assemblies and two adapters. The Pocket Flash, Victor No. 65, is an assembly of a 4½-inch polished parabolic aluminum reflector clipped to a "penlite" battery case handle finished in polished chromium. The handle fits easily in a vest or breast pocket. The reflector fits neatly in a side coat pocket. The socket is of the bayonet type to accommodate midget flash lamps, for which these units were expressly designed. The Compact Flash, Victor No. 66, is similar to the Pocket Flash, but has a 5-inch reflector. Featured is the easy operating ejector incorporated in the socket for quick ejection of hot, fired lamps. The Adapt-O-Flash, Victor No. 67, has the 5-inch reflector and, in place of the "penlite" handle, it has an Edison base adapter. This unit also features the automatic hot bulb ejector. It is designed to convert regular flash holders and synchronizer battery cases for the effective use of Midget Flashlamps. The Plain Adapter, Victor No. 68, is a polished chromium finished adapter for Midget Flashlamp. The Ejector Adapter, Victor No. 69, is similar but has the ejector feature. Prices are $1.00 for the Pocket Flash, $1.50 for the Compact Flash or Adapt-O-Flash, 45c for the plain, and 75c for the Ejector Adapter. Dealers are rapidly being supplied with these new and timely Victor units.

A new 400 ft. 16 mm. reel in spring steel has just been announced by the Bell & Howell Co., 1801 Larchmont Ave., Chicago, Ill. For some time Bell & Howell have made 800, 1200 and 1600 ft. reels of spring steel, while the 400 ft. reel was made of aluminum. The new reel offers accuracy of flange alignment, ease of threading and a footage gauge engraved on each reel. Price of the 400 ft. reel is only 65c. For further details write the above address.



Kodak 35

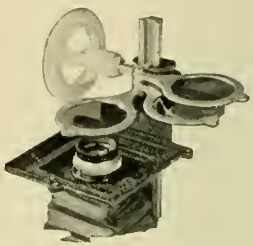
A new model of the Kodak 35 with coupled range finder and Kodak Anastigmat Special f/3.5 lens in Kodamatic shutter, is announced from Rochester by the Eastman Kodak Company. The new Kodak 35 with range finder will retail for only $47.50. The built-in range finder is of the precise split field military type. Focusing range extends from 4 ft. to infinity. The camera incorporates the many features of the three other Kodak 35 models.

Two new items for the darkroom chemical shelf have been announced by the Eastman Kodak Co. of Rochester, N.Y. A new Kodak Sepia Toner, conveniently packaged in double tube form, is intended for producing warm brown tones by redevelopment of contact and projection prints, lantern slides, and transparencies. Each tube yields one quart of bleach, and one quart of toner. A carton of five tubes retails for 75 cents. Also announced is a protective Kodak Film Lacquer, for application to film negatives and positives. This lacquer, applied by camel's-hair brush, is similar to that used on the emulsion side of Kodachrome transparencies. It provides a degree of protection against abrasions, and if scratched or finger-marked it can be removed by brief immersion in a 1 per cent. solution of sodium carbonate. After thorough wash and drying of the film, a fresh coating of lacquer may then be applied. Price of a 4-ounce bottle is 50 cents retail.

Battery and rural current lamps are now available for use with Kodak Portable Miniature Enlarger, announces the Eastman Kodak Company of Rochester, N.Y. The enlarger may be purchased with either of the special lamps without increase in price.

A new Besbee Pocket Title Letter Set recently introduced by the Albert Specialty Co., 231 So. Green Street, Chicago, Ill., offers amateur cine photographers professional appearance with small title frames. The set consists of a complete font of miniature metal letters, small enough to fit the easels of small title frames, yet perfect in every detail. A special non-reflecting black background is provided with each set which is the correct size to fit on easels of small title frames now in use. Backgrounds are provided with two friction clamps at the top to hold the title firmly in place while being photographed. Price is only $3.50. Further details may be obtained from the above address.

The Photrix Rapid Print Washer will be introduced to the trade for the first time at the Chicago convention, announces the Intercontinental Marketing Corp., 8 W. 40th Street, New York City. The new washer offers a new design in print washers and keeps the prints suspended in the water, preventing their sticking together, and removing hypo quickly. It is made of durable chemical resistant and non-corrosive bakelite. The water reaches the washing tank through 14 vents and is removed from 14 similar vents on the opposite side. It will accommodate prints up to 8x10 inches and is priced at $2.95. Further details may be obtained from the above address.



Tri-color Filter

Color-minded photographers will be deeply interested in the announcement of a new Solar Enlarger accessory, a **tri-color filter set** for making color separation negatives, just put on the market by Burke & James, Inc, 223 W. Madison Street, Chicago. The set includes three Wratten gelatine filters in the standard colors of red, blue, and green for color separation work. They come in Solar metal mounts and attach in place of the regular ruby filter, fitting all models of the Solar Enlarger with lens board front. A touch of the finger changes from one filter to the other. They are priced at $4.50 per set. For further information, write the above address.

The Britelite Sunspot, a new product introduced by the Motion Picture Screen & Accessories Co., Inc., 351 W. 52nd Street, New York City is a new focusing spotlight designed to meet the problems of the amateur movie and still photographer for black and white or color photography. It is equipped with a 4½" diameter Fresnel Lens. Focusing is of the push pull type with positive lock at all positions. Ample ventilation insures long lamp life and low operating cost. The Britelite Sunspot is mounted on a sturdy steel yoke permitting an unusually broad tilting range, and it can be interchangeably mounted on the table base or tripod at will. Sturdily built for long use the Britelite Sunspot, complete with bulb and table base, is priced at $10.95. A sturdy 6 ft. Britelite Tripod is $4.00 extra. Write the above address for further details.

A new model of the popular Corsair Camera that will use standard 35 mm. cartridges has just been announced by the Universal Camera Corporation, 30 W. 23rd St., New York City. The new model, which will be called Corsair II, offers all the advantages of Model I. Now photographers may have their choice of Model I which uses Mercury Film Rolls, or Model II which takes standard 35 mm. cartridges. Corsair Model II is priced at $19.75.

Announcements

The Leudi Exposure Meter is not just another exposure meter. In its construction certain scientific principles, not considered in other meters, have been taken into account. It has, therefore, grown into one of the outstanding and popular exposure meters on the market today. There is no need of the eye gradually adapting itself to light intensity, or for arbitrary counting before deciding on the exposure numeral. The Leudi is feather-weight and only measures 1″x1½″x⅜″, nothing to get out of order, extremely simple to use, and can be used by anyone with or without glasses. The Leudi Cinemeter, for motion picture enthusiasts, has scales specially fitted for all motion picture cameras, for frequencies of 8 to 128 frames per second, and for film speeds from 15° to 29° Scheiner. Mimosa American Corp., 485 Fifth Ave., N. Y. C., the distributors, have some very interesting literature which can be had by writing to them at the above address.

The slow months for enlarger sales apparently are not living up to normal, for The Sun Ray Photo Co., Inc., of 295 Lafayette St., New York, indicates full speed ahead with orders coming in daily for their very popular Mastercraft Enlarger. This enlarger gained fame quickly when it was introduced last fall, and since then has been the big leader of the Sun Ray Line. Precision built, it takes all negatives from 2¼x3¼ down to 35 mm. It retails at $32.50 without lens, $37.50 with a 6.3 lens and $42.50 with a 4.5 lens.

Candid camera character studies of interesting personalities, including local celebrities with some claim to wider fame, are being purchased by Bert H. Davis, Box 236, Utica, N.Y. Before submitting photographs, the person to be featured should be mentioned to Mr. Davis with a brief statement of the facts that make him or her notable. Return postage should be furnished with all prints.

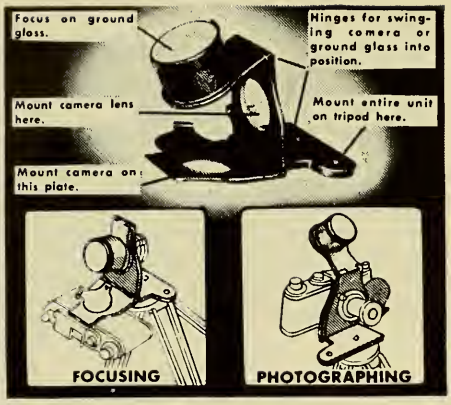
A new photographic program for the airways entitled "Barleben on Photography" is now being featured each Friday evening at 9 o'clock over station WEVD. Mr. Karl A. Barleben, F.R.P.S., who conducts the program is advisory counsellor of Goodspeed, Inc. The program features interviews with important photographic figures, questions and answers, prize contests, etc.

Prices on the Omag Sunshade and Filter Kits for movie and still cameras have been increased, announces the Chess-United Company, Inc., Emmet Bldg., N.Y.C. Previously priced at $4.95, they will now list at $5.95 except the one designed for the 1″ F:1.9 lens, which lists at $6.75. A folder describing the Omag Filters and Omag Sunshade and Filter Kits may be obtained from the above adress.

Goerz Artar Apochromat Lens

An interesting and important application of the new technique of applying anti-reflection surface coatings to photographic lenses has been announced by the C. P. Goerz American Optical Company of New York City. Two 47½-inch focus Apochromat Artar lenses have been treated in this manner by the Goerz Company, cooperating with Dr. C. H. Cartwright, prominent in developing the coating process. These giant photoengraving lenses, selected for their extreme definition and high degree of color correction, were purchased by the National Geographic Society. They will be used for solar photography by the society's eclipse expedition to South America, and are believed to be the largest photographic lenses to which this process has been applied. A principal problem in eclipse photography is to obtain an estimate of the brightness of the sun's atmosphere at various heights. This is made difficult by doubly reflected light in an ordinary lens. The coating process increases accuracy by reducing the reflected light, and will prevent a background of stray light from hiding faint details of the sun's atmosphere. The lenses were examined carefully before and after the coating process. Mr. Schmid and Dr. Durand of the Goerz Company found no loss in definition caused by the coating process, and there was a noteworthy reduction in stray light. They warn, however, that the fragility of the surface would seem to make the process of dubious value for ordinary photography. The effect of the coating process is shown in the accompanying photograph. The difference in reflecting power of the coated and uncoated lenses is remarkable. Only a faint reflected image is visible in the coated lens.

Motion Pictures for schools, churches and clubs are available from the Harmon Foundation, Division of Visual Experiment, 140 Nassau Street, N.Y.C. Films are 16 mm. silent or sound. Rental prices are nominal. The Harmon Foundation is a non-profit organization devoted to "assisting others to help themselves." The Division of Visual Experiment is only one part of its many activities. A detailed list of the films available and their rental price, as well as further information, may be obtained from the above address.


Focus on ground glass.
Hinges for swinging camera or ground glass into position.
Mount camera lens here.
Mount entire unit on tripod here.
Mount camera on this plate.
FOCUSING
PHOTOGRAPHING

Speed-O-Copy

A compact little ground glass focusing device, known as the Speed-O-Copy, has become very popular among Leica and Contax owners. Although its prime purpose is for reproduction and fine detail copy work, it is said to be invaluable for all scenic and portrait photography as well. The unit is comprised of a receptacle in which to mount the camera lens, and two hinged plates, one incorporating the ground glass focusing barrel, the other for mounting the camera. These are hinged in such exact alignment that either camera or ground glass may be swung into position behind the lens, and the focusing surface of the ground glass will always occupy the exact same plane as that occupied by the film in the camera. To use, the camera is locked in position on the camera plate and the lens screwed onto the lens plate. The whole assembly may be mounted to tripod or other support such as the Shull Photo Optical Bench or the column of the Leica enlarger. It is then merely necessary to swing the ground glass into position behind the lens for wire sharp focusing—fold back—and swing the camera into place to expose. The D. Paul Shull Co., manufacturers, 240 South Union Avenue, Los Angeles, California, will be glad to send further details upon request.

Transparent "Lucite" methyl methacrylate resin, which can be molded with extreme accuracy, is helping to reduce camera costs, it is announced by the Plastics Dept. of E. I. duPont de Nemours & Company. View-finder lenses, turned out of the molding machines at high speed, are fitted into a new and inexpensive reflex-type camera which permits the photographer to see what he is taking. The plastic lens requires no finishing. It leaves the mold ready for installation in the camera. "Lucite" is crystal-clear and shatter-proof. It is not now utilized for the photo lens itself, but it has been tried experimentally for that purpose with some success. The possibility that precision photo lenses some day can be molded of plastic has not been dismissed as too visionary.

The Gevaert Company of America, Inc., 423 W. 55th St., N.Y.C., wishes to make the following statements to their customers: (1) Gevaert sensitized photographic products sold in the United States up to the present have originated in the Gevaert factories in Belgium. (2) In order better to serve its growing clientele, The Gevaert Company of America, Inc., in 1939 acquired a large factory site at Williamstown, Mass., for the manufacture of Gevaert products. This was before the beginning of the present war in Europe. (3) Following the declaration of war between the Allies and Germany on September 3, 1939, The Gevaert Co. of America, Inc., increased to the limit its supply of Gevaert products. To do this it was necessary to rent additional loft and storage space, which was filled to capacity. (4) Plans were drawn and equipment ordered for the new factory at Williamstown, and since Spring the actual work of reconstructing the present building and adding to it has been carried forward as rapidly as possible. It will be only a matter of months until Gevaert products are actually being produced in Williamstown.

Bernard Arkin announces the opening of a modern up-to-date store located in the lobby of the Grand Central Palace Building, 480 Lexington Ave., N.Y.C. The new store embodies all conveniences for the amateur and professional photographer in either the movie or still field. Photographers are cordially invited to come in and see the many conveniences offered to the company's customers. Space has even been arranged so that photographers may meet and discuss their prints and talk over photographic problems.

A new merchandising theme in the sale of incandescent lamps was announced this week by the Beamlite Electric Corporation with the introduction of the "Dated" lamp. Under this sales feature, lamps will be dated at time of sale and unconditionally guaranteed for a three-month period thereafter. A patented testing-dating device will be supplied to jobbers and dealers for quick, easy lamp dating. The company's products are manufactured under the brand name of "Beamlite" and comprise a complete line of both inside silvered reflector and standard type lamps. Manufacturing is carried on at Toledo, Ohio, with National Sales Offices at 366 Madison Avenue, New York City.

A complete line of rubber cements are distributed by The Wold Air Brush Mfg. Co., 2173 N. California Avenue, Chicago, Ill. They also supply a line of handy dispensers for office and studio that make the use of this material convenient and economical. A descriptive circular is available upon request from the above address.

The $1500 Golden Anniversary Picture Contest which opened July 4th, is drawing entries in tremendous quantity. The contest is open to all users of Graflex, Graphic or Crown View cameras in the United States, Alaska, Hawaii and Porto Rico. Seventy-six cash prizes and 75 medals of award will be distributed. The contest will close at midnight September 8th. Official rules and entry forms may be obtained from all Graflex dealers or by writing directly to the Folmer Graflex Corp., Rochester, N.Y.

True three dimensional prints have long been a tantalizing ideal just beyond the

reach of photographers. Mr. Edwin H. Land, inventor of Polaroid light-controls, describes a long step in that direction in an article appearing in the June issue of the Journal of the Optical Society of America. This new type of three dimensional picture is called a Vectograph. Enlargements may be made to any size and either prints or transparencies may be projected in ordinary projection equipment. The only limitation which remains apparently is that the print or the projected picture must be looked at through Polaroid viewing windows. This material is colorless and can be mounted on a simple piece of cardboard and held to the eyes just as a pair of spectacles would be.

The two negatives necessary to all three dimensional processes are made in any ordinary stereoscopic camera on ordinary film which is processed in the usual way. Each of the two negatives is printed photographically on a separate vectographic sheet in such a way that the areas for the dark picture tones polarize the light strongly, areas for light picture tones weakly. The resulting vectographs are then placed one over the other. When seen through the Polaroid viewer the left-eye image is visible in full contrast and sharpness to the left eye. It is completely invisible to the right eye which sees only the right-eye image. As in ordinary two-eyed seeing, the two slightly dissimilar images are combined by the brain into a single impression giving the complete sense of depth. A variety of methods for producing the new prints are mentioned in the article and it is stated that experimental prints have been made in full color. No announcements are made concerning the introduction of the vectographic process for popular use by amateurs.

Booklets and Catalogs

A circular giving flash and flood exposure tables for both black-and-white and color photography, as well as complete details on Wabash Photolamps, has been published by the Wabash Photolamp Corp., of Brooklyn, N. Y. You may obtain a copy from your local dealer or direct from the above address.

A folder completely describing the new General Electric Exposure Meter, its advantages and operation, is now available without charge from the General Electric Company, Schenectady, N.Y. Ask for folder GED-852.

Two free folders are now available without charge from the General Electric Co., Schenectady, N.Y. Folder GED-744B gives a complete list of film values for use with the General Electric Exposure Meter. Folder GED-678B explains the use of the new General Electric Exposure Meter. Make requests for these folders by number so that you will be sure to receive the one in which you are interested.

A folder giving complete data on all G-E Mazda Lamps for photographic use is now available without charge from your local dealer or from the General Electric Co., Lamp Dept., Nela Park, Cleveland, Ohio. Ask for folder P-093.

A "Summer Specials" edition of the well known Central Camera Bargain Book is now available for distribution by the Central Camera Company, Dept. SS, 230 So. Wabash Avenue, Chicago, Ill. This special catalog includes many outstanding values marked down for rapid clearance. Photographic equipment and supplies of all kinds are covered, thousands of items being listed. A free copy is available from the above address.

Copies of an abstract from one of a series of free lectures being given under the auspices of the Penn Camera Exchange, Inc., by Morris Germain, A.R.P.S. are available upon request. The abstract includes the Germain Fine Grain Developer Formula as well as valuable hints on processing film. Send a self-addressed stamped envelope to Morris Germain, A.R.P.S., Technical Director, Penn Camera Exchange, Inc., 126 W. 32nd St., N.Y.C.

"Agfa Photographic Papers, Their Properties, Processing and Application," is the title of a new 50-page booklet just published by Agfa Ansco of Binghamton, N.Y. The booklet is crammed with information on Agfa papers including exposure scales of Agfa papers, comparative speeds, developing formulas, toning formulas, and many hints on developing technique. Price is 15c, obtainable from your dealer or the above address.

"A Pageant of Photography," edited by Ansel Adams, is a book designed to perpetuate and broadcast the many fine things included in the widely acclaimed 1940 Photographic Show on Treasure Island at the Golden Gate International Exposition, San Francisco, California. Far more than just a catalog, it is a significant contribution to the literature of photography. Six illuminating articles by Beaumont Newhall, Moholy-Nagy, Dorothea Lange and others. Fifty-eight master photographs by Hill, Brady, Jackson, Genthe, Steichen, Strand, Sheeler, Weston, Outerbridge, Bourke-White and many others, superbly reproduced (2 in full color) on fine 100-pound paper. Regular edition 50c (by mail 60c). Plastic bound with transparent Lucite covers, $1 (by mail $1.10). Publishers are Crocker-Union, 735 Harrison Street, San Francisco, California.

A new 40-page treatise on portraiture and commercial photography is now being distributed without charge, for a limited time only. Ordinarily this booklet sells for 50c, but a free copy may be obtained by writing Burke & James, Inc., 223 W. Madison St., Chicago, Ill., and mentioning this notice. The booklet is profusely illustrated and covers portrait lighting, posing, profiles, child and baby portraits, groups and full figures. It also contains instruction on the taking of banquets, animal portraits, still life and table tops, interiors, architectural work, copying, etc Write to the above address for your copy of "Better Pictures The Watson Way"

The 102 - page Fotoshop Handbook of Color is now ready for distribution. It is packed with information on color photography and includes a complete directory of materials and equipment for color work. Because of the giant size of the book, a charge of $1.00 is necessary, but this will be refunded on any purchase of $10.00 or more. The edition is limited, so if you are interested write at once to the Fotoshop, Inc., 18 East 42nd St., New York, N. Y.

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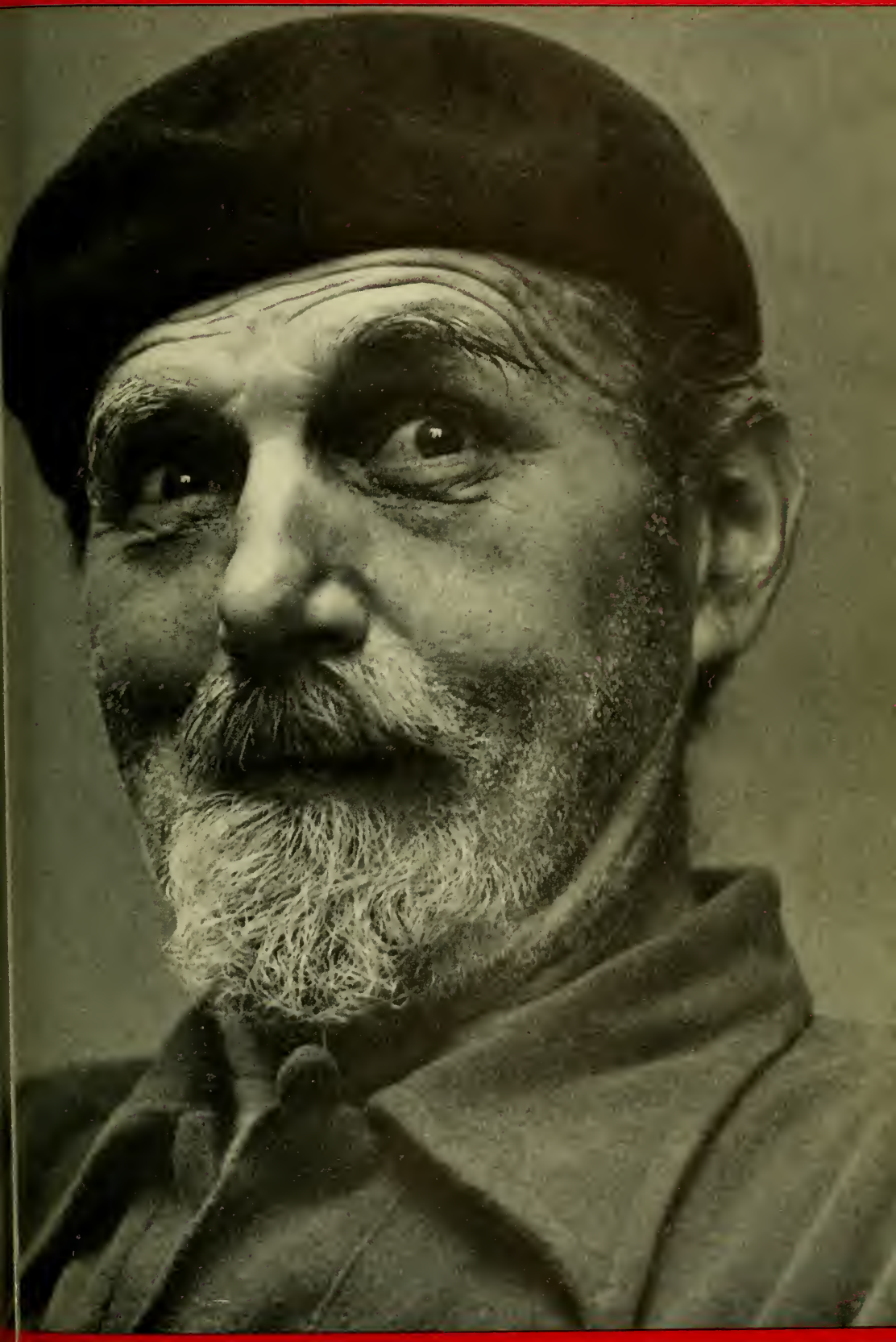

THE AMERICAN GIRL — WILLIAM MORTENSEN

PHOTOGRAPHY IS THE UNIVERSAL MEDIUM OF TODAY. IT ENTERS VITALLY INTO ALL MODERN INDUSTRIES, ARTS AND SCIENCES. A FEW WEEKS SPENT IN LEARNING THE ESSENTIALS OF PHOTOGRAPHY MAY, MORE THAN ANYTHING ELSE, EQUIP THE STUDENT FOR THE IMPORTANT PROBLEM OF MAKING A LIVING.

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"Big Brother" *David Darvas*

1940 Pittsburgh Salon

Ifor Thomas
Master of the Arts

Herbert Thayer Bruce

IFOR Thomas, will object to the title of this piece. Because it suggests something he says he would as lief forget. Singer and painter though he was, he now is a photographer. He insists on being known as a photographer only. If the past must be brought up . . . well, bring up and have done with! But we cannot skip over the past that nonchalantly. The past made the man.

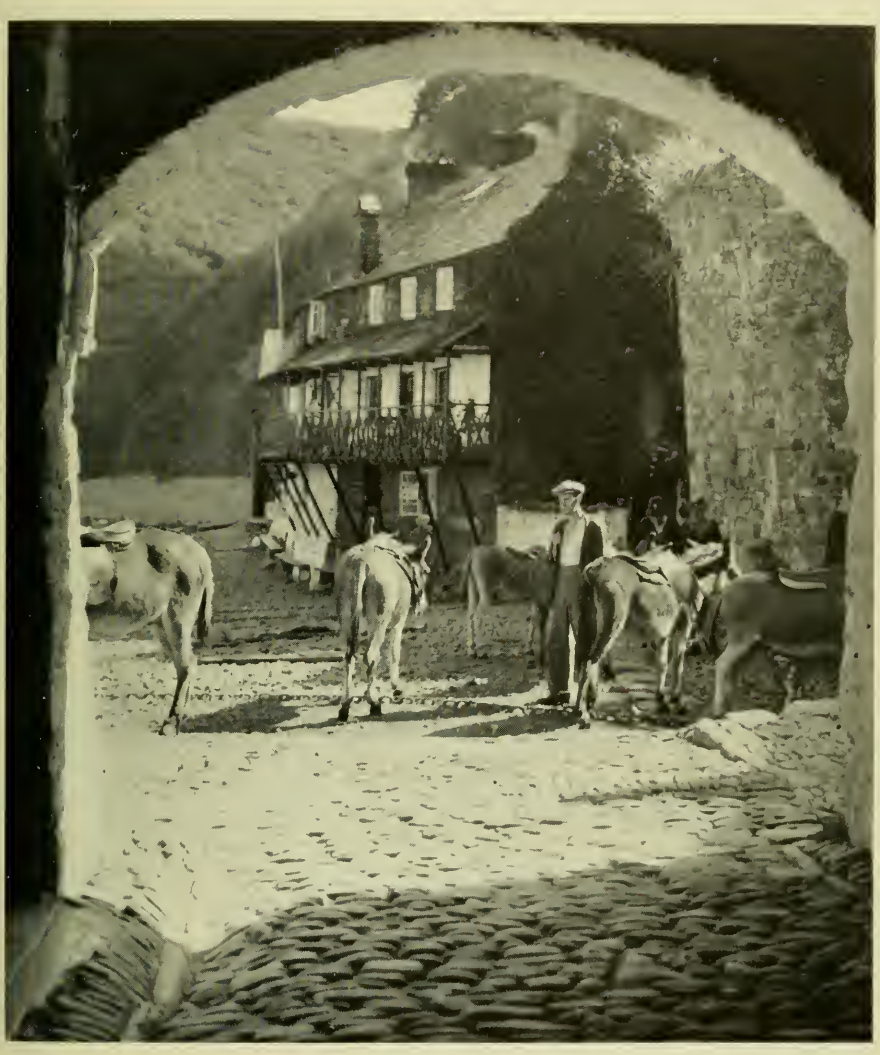
Thought-habit and magazine writers have given us mental images of opera singers and painters which are inaccurate. For example, take Mr. Thomas. He is neither the bombastically temperamental genius gargling arias from Faust or La Boheme while neighbors slam windows shut, nor the aesthetic dauber for whom intimates are daily threatening to buy a haircut. He is a rusty-headed individual of stocky build with a ready wit and a flash of temperament more exhuberant than prerogatively artistic. He is as rugged as the Welsh countryside from which he came, yet as kindly as the fertile soil on which he was reared. Nature endowed him with a voice for song and, perhaps for added devilment, an instinct for painting. We say "for added devilment" because he would have none of either. Seriously; that is . . . professionally. Sing he would when the spirit moved and sketch he might when the scene commanded. Each was but an expression of what is called "self." As for work, future: well, he was a farmer's son. There was naught else to do but carry on. But the Fates held something else in store.

"New Jersey Scene" *Ifor Thomas*

The Fates first intimated their plans some thirty-odd years ago when Ifor was still in knee breeches. His mother had been a national singer of Wales. It was but natural that she should want her boy soprano son to give good account of himself vocally. But Ifor had different thoughts. He preferred painting to singing. Yet he gave in to his mother's wishes . . . after having been bribed with a set of tools. Then he won three prizes for singing, at an Eisteddfod: he tied with himself for first place under a *nom de plume* and, in addition, won second place. Thus the die was cast. He received bardic honors, honors shared by the great singers and poets of time. But he is most casual about it.

"Ifor-O-Fon is my bardic title," he says. "I got it for being the first Welsh tenor to sing in the opera house of Monte Carlo, where I made my debut, and the opera houses of Paris and Milan. But that was after I had studied at the Royal College of London. And that is a funny story."

He laughs and slaps his knee. "A friend of my father's begged me to enter the contest for a scholarship. He was a singing teacher and liked my voice. He thought I had a chance of winning. So I entered just to please him. I had no intention of being a singer. No thought of it, even. Look you! . . . I won it. From among four hundred contestants entered from all Great Britain. Surprised! By Golly! Well, it was a four-year scholarship. Then I studied in Paris. I studied under Gracia. Dinh Gilly and



"Donkeys at Clovelley-Devon" — *Ifor Thomas*

Jean de Reszke. Then I sang in opera. I received the bardic honors at a National Eisteddfod in Wales."

"Bardic honors?"

"Well, there are Irish bards and Scottish bards and Cornish . . . they even have bards in Brittany and the Isle of Man. But the honors are Welsh in origin. King Howel Dha . . . that means Howel the Good . . . established the order a thousand years ago. In 940, to be exact. It was an hereditary title, or order, in the early days. Its gratuities were fixed by law. The minstrels and poets who received the title enjoyed many of the privileges of nobility regardless of birth. The English King Edward the First broke the power of the order in England in the late Thirteenth Century but the honors live on in Wales, 'though no longer hereditary."

"The Eisteddfod?"

"Why, Eisteddfods are held right here in the United States. In Scranton, Pennsylvania, and Utica, New York, for instance. I've sung in them. They are large assemblies at which prizes are given for singing, poetry and art of all kinds. Originally, and largely today as well, it was one of the most important institutions for the maintaining of Welsh national feeling. Gruffydd ap Cynan gave the Eisteddfod permanent rules way back in the year thirteen forty."

"You know your Welsh history sure enough," we said.

"And why not," Mr. Thomas answered. "Here," and he takes a picture from the wall of his office, "here is a photograph of Caernarvon Castle, the castle in which the first Prince of Wales was born. After Edward the First had reduced the Llewelyns to supposed servitude, he made his son, later Edward the Second, the first Prince of Wales to placate the Welsh feeling against the English. My home was on the Isle of Anglesea which is separated from Caernarvon, also an island, by the strait of Minai. I know that country and its lore as familiarly as I know my own hands. But I am American now. I came here in 1927 to make a concert tour. I made my radio debut on the original Atwater-Kent hour, as guest artist. Remember it? But I said I didn't want to talk about singing. I don't sing any more. Oh, once in a while I'm asked to sing as guest artist. But I generally refuse. I am a photographer."

"And a painter as well?" we said.

He glared; but in fun.

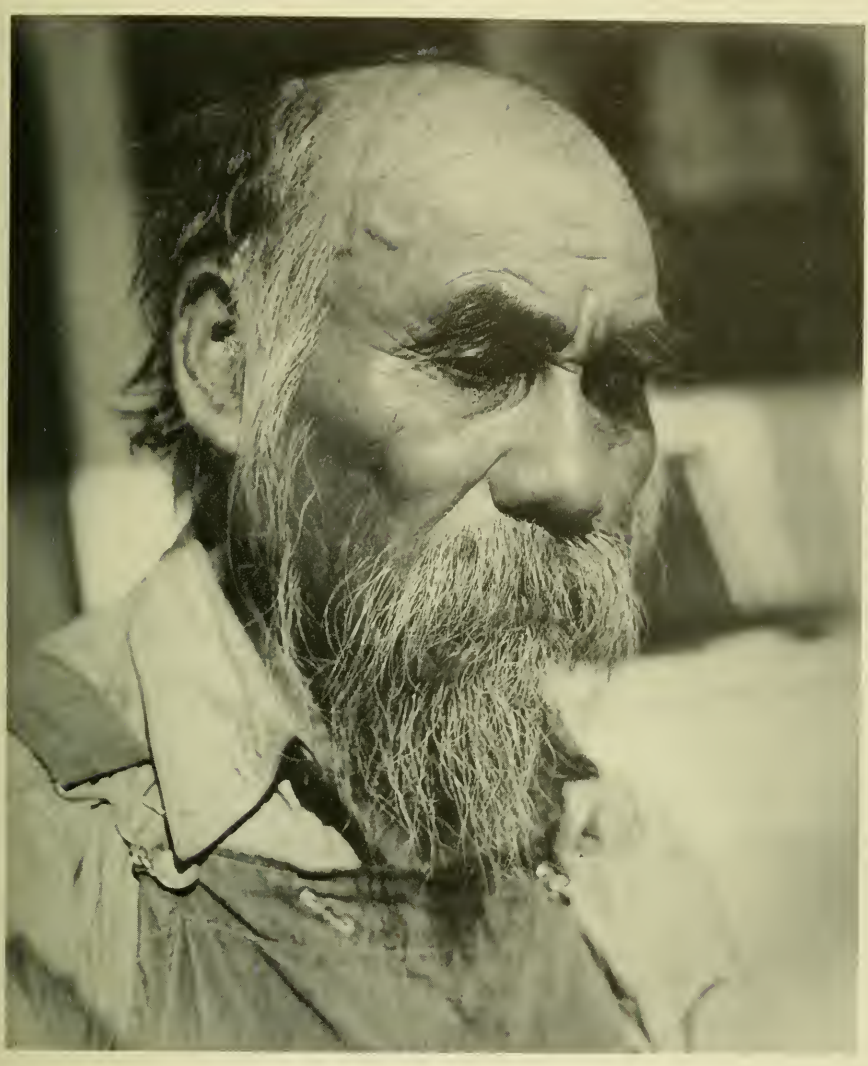
"All right," he answered. "I paint. But with a knife. I paint only with a palette knife. I exhibited six oils at an exhibition held by the Thames River Valley Art Club, sold three at prices higher than the values which had been placed on them, and was made an associate member. I suppose I have an instinct for colors. And I like rugged country. Gaspe', Quebec, for instance, where Jacques Cartier took refuge back in 1534. I have spent many summers there. I have painted scenes there. And photographs? I have books full. Look on the walls! I defy anyone with even the slightest photographic instinct to visit Gaspe' and not be carried away by its beauty and the colors and lights and shadows which make photography an exotic pastime or profession. You see, I really prefer to photograph landscapes. Even as a boy. I was as proud when I exhibited at the Royal Photographic Society of London as when I made my operatic debut. It was an exhibit

"The Glousterman, Thebaud" *Ifor Thomas*

of some of my prints in New York at which I won prizes which led to my present work as staff photographer for *Collier's*. I was asked to submit other samples of what I could do with a camera. Well, they liked what I could do. And now I wouldn't change my work for any other career. That is why I wish you would not over-emphasize the singing and painting. That is past. A closed book. I am a photographer now."

And indeed he is. Not of the illustration variety which poses evening-wrapped goddesses in seductive attitudes conceived by art directors to make irresistible a particular perfume or that other variety which photographs the "400's" illustriana for the readers of newspapers and magazine society pages to admire, or envy. Mr. Thomas photographs life, those who live it, and how they live it. A Thomas print may be a shot of the man from Mars or a color picture of a mosquito. In his office, since it could hardly be called a studio in the conventional sense, is an odd assortment of prints each in itself telling a different story about the man who made them. Indeed, he will sit behind a plain office-type desk surrounded by filing cabinets and shelves with a small but efficient dark room literally built into the office, wearing a rust colored smock which blends with his hair and complexion, and elaborate on the stories his prints impart. If pleaded with, he will open drawers and bring forth the evidence. Smiling Jim Farley, for instance, with a facial expression foreign to those of us who know "genial Jim" from newspaper and magazine acquaintance only. Einstein with a whimsical light in his eyes, mischievous even . . . but so characterful! And whirling clouds of dust drowning the earth in an avalanche of darkness. Prima donnas and prize fighters, hockey players and sweet things from Hollywood. For Ifor gets them all, travel where he must for the purpose. Because his job is not photography in the simple sense; nor in the art sense either . . . and never associate the word "candid" with a Thomas print, "candid" 'though it may seem. His prints illuminate a momentary flash of character perhaps unknown to the individual of whom the shot is being taken. This is important to Ifor. Pictures of individuals must tell two different stores; the character of the individual and the mood of the individual as expressed in the magazine article or story which the picture is to illustrate. Likewise, a print of a building or landscape or group of workingmen punching a time clock at the end of the day must possess a story value fitting the written text which it will accompany. He is a photographic storyteller. And so he wishes to be known, too. And we can take no exception to that. In addition to photographic story telling through the medium of his own pictures, he must edit photographs made by others submitted for the specific purpose of illustrating a specific article. Thus his job is extraordinary in the sense that he must not only know what he himself must produce for a given assignment, but also be capable of efficiently and unbiasedly editing the work of others. Few men of artistic talent and skill, whatever the art medium, are able, let alone qualified, to function honestly in this dual role.

Yet the man is an artist photographically. We may forget the opera singing and palette knife painting just as he wishes we should do, except in that undoubtedly his operatic training developed a concentration of purpose and that his palette knife painting undoubtedly developed an eye



"Old Cherokee" *Ifor Thomas*

for composition and form which have combined for the excellence of his photography . . . not forgetting, of course, that he was camera-conscious as a lad in knee breeches on the Isle of Anglesea. When his mother gave him a set of tools, it was a camera he wanted. But a camera was not then an art medium. His landscapes are a revelation. And if a particular landscape would be more perfect with a blossoming cherry tree on a particular rise of ground or an old saw mill at the edge of a turbulent stream in the New England hill country, well . . . he just adds what is necessary. One particular print on his anteroom wall reminded us of a tree on the

Monterey Coast in California, a tree which captured our fancy in youth years ago. Queried about it, he answered, "Oh, the tree! The tree is in Wales."

"But the landscape is not Welsh," we retorted.

"Oh, the landscape! I forget just where that was. But that windmill there is near Newport, Rhode Island. I shot it through a bus window in passing. The sunset was taken in . . ."

Missouri or Kansas; we did not quite catch which it was. We were still groggy from the Monterey description. Yet, the stunt is not a new one. He would be the last to infer that it was, or to give the impression that it was an art particularly his own. The important fact is that he sees photographically the value of an object and perhaps, months later while on an editorial jaunt, will chance upon the complementary background which will make the union of the two compositionally pure . . . and that is a sense which is latent; it may be cultivated to be sure, but the roots must be there to cultivate. While we are on this subject of composition, Mr. Thomas is another like Arnold Genthe who believes that the bizarre, the unnatural or extreme in focus or camera angle, is not good composition . . . that it is not even good photography. As he explains this, he deftly sketches a block of houses to illustrate his point; one sketch showing the end house of a block of identical houses enlarged and the block itself tapering off nearly to a pin point, and the other sketch showing the same block of houses proportioned as the eye sees it naturally. In this he is distinctly of the Genthe school. Not that extreme angle shots do not serve a purpose when they are what they are meant to be. But they are that only. Thus, he believes, photography to be photography must portray life, nature and people as they are . . . as they live and grow. He points out that a ship cannot sail up a hill of sea however effective the print may be. He is quite fixed in his opinions on the subject of honest composition. And his camera results bear witness.

In his writings in photography magazines, and when we last talked with him it was our understanding that he was preparing a book, much of his thought on the practice of camera-art and composition has been expressed. He believes that photography's mechanical future, through improvement of lens and films particularly, will bring about a degree of perfection as extreme and startling as a comparison of Morse and Draper's excellent but little known portraitures of 1839 with the work of contemporary portrait camera artists, or of the old autochrome color methods with the modern film which makes it possible for a photographer to sling a camera over his shoulder, fill his pockets with film and dash out to do an assignment with no great concern for light or the elements.

We wish Mr. Thomas would show us more of his work, either professionally or by exhibition. There is much to be learned from his results, and there is much he can tell us if only his pen would scratch more paper for publication. Believing this, we must abide by his wishes and ask our readers to overlook the past, to think of him as a photographer only. Yet we cannot but believe that his professional excellence as a photographer has risen from what might have been avocational obscurity to nation-wide recognition as a result of his mastery of all the arts.

Making Lantern Slides

Jack Wright

Part I

ONE of the remarkable recent trends in photography has been the renewed interest in lantern slides and transparencies. This is due in part, no doubt, to the overwhelming popularity of Kodachrome and Dufaycolor. Amateurs make transparencies in color and purchase projectors with which to view them. From there it is only a step to making and viewing slides in black and white. Thousands of amateurs therefore are rediscovering a whole field of photographic interest which was intensively cultivated by their predecessors but which lately has not been much explored, at least in comparison with the overwhelming popularity of other phases of photography.

To most of us a lantern slide is something which the smaller theaters use for advertising purposes and which, coupled with a magic lantern, our grandfathers employed to while away long winter evenings before the advent of the movies and the radio. It is something of a surprise for some of us, therefore, to learn that the making of lantern slides is really a fine art, that a well-made slide has luminosity and gradation of detail which it is impossible to secure on paper, that slides may be toned the most beautiful shades of brown, red, blue, green, etc., and that the competent making of slides is in many places very highly esteemed.

In other days slides had a very important place in photography. Many of the best pictorialists exhibited their finest work in the form of slides as well as prints. Many photographers added much to their reputations by making superlative slides, outstanding among these being Mr. J. Dudley Johnston, Hon. F.R.P.S., whose reputation as a slide-maker is worldwide. The Royal Photographic Society of Great Britain even to this day continues to exhibit some of the work of its members in the form of slides and transparencies.

In line with the burgeoning popular interest in lantern slides CAMERA CRAFT presents herewith the first of a series of three articles, in the course of which all phases of slide making will be discussed.

The first article will deal with the sizes and types of slide materials available and the printing of slides, both by contact and projection. The second article will discuss exposure and development of slides, including a variety of formulae. The third and final article will deal with methods of toning slides in various colors, together with the retouching, binding and fininishing of the completed slide.

Two sizes of slides are common in this country—those which are two inches square and the larger ones 3¼ by 4 inches. The English lantern slide is 3¼ by 3¼ but, since this article will be read largely by Americans, most of the discussion will have to do with processes and materials found in this country.

The Eastman Kodak Company manufactures the two sizes, with three grades of emulsion for each. The grades are soft, medium and contrast. In addition there is a Special Contrast Antihalation plate for slides of line subjects. This is identical with the ordinary contrast plate except that it has a protection against abrasion.

The soft slides are for negatives that are hard and contrasty. The medium slides are for medium or average negatives. The contrast slides are for negatives that are soft and lacking in contrast.

The Defender Company also manufactures lantern slides—the Seed yellow label slide and the Standard Regular slide. Both give excellent results, as do the Eastman materials.

It should be said in the beginning that the negative is the father of the slide and it is difficult for a slide to be any better than its parent negative. Balanced, well-exposed negatives, with rich detail in shadows and highlights, produce photographically beautiful slides. Negatives which, in one particular or another, are lacking, produce slides which may show some improvement but are still not all they should be. Our aim, therefore, should be to produce the best possible negatives from which our slides are to be made.

Lantern slides are considerably slower than most other plates or films. A darkroom that is safe for bromide paper will be safe for the making of slides. The Eastman Kodak Company recommends the Wratten safelight Series 1 for its soft slides and Series O or OA for medium and contrast slides. Development should be carried on in a tray with a white bottom in as strong a light as is safe.

The printing of lantern slides may be done by contact or with an enlarger. The latter usually produces the best slides, because contact between negative and slide is not always perfect in the printing frame or printing box and because a projector permits the use of whatever portion of a negative is desired.

The photographer who possesses a contact printing box may use it to print slides by contact. It will, of course, be necessary greatly to reduce the amount of light in the box. The writer uses a box in which four 60 watt lamps are ordinarily employed. He has found that one 10 watt lamp gives ample light for printing slides.

In printing slides in a contact printing box, the negative is dusted with a camel's hair brush and placed in the box, emulsion side up. The slide is dusted and placed over the negative, emulsion side down. The emulsion side may easily be determined because it is dull, while the glass side is hard

and shiny. Slides, of course, should always be handled by their edges.

When the slide is being laid on the negative in the printing box the negative should be masked, so that only the desired portion of the picture is registered on the slide. This prevents reflections from the edge of the glass, which tend to fog the image, and also provides space all around for binding.

Many amateur photographers are not equipped with a contact printing box. These may use an ordinary printing frame and obtain quite satisfactory results. It will be necessary, however, to arrange a setup which will permit exposures to be duplicated as to time and distance from light to printing frame. The easiest way to do this is to place an electric light at one end of a board, which is marked off at six inch intervals. By taking note of the distance of the frame from the light and the time of exposure at which a satisfactory slide is made, other satisfactory slides can be made by duplicating these conditions. This is impossible where the printing frame is held in the hand.

Some thought should be given to the strength of the printing light. If the exposure is shorter than 10 seconds it is difficult to measure accurately. If it is longer than a minute it tends to become tiresome, especially where bromide paper is used instead of test slides, as will be explained in the second article.

Provision should be made for switching the printing light off and on easily. The light globe should be frosted and if a sheet of frosted glass is intersposed between the light and the printing frame the results will be even better.

In putting the negative and slide into the frame, put the negative in first, emulsion side up. Place the slide, emulsion side down, in the frame. Then close the frame, place it on the board and make the exposure.

The third and in many ways the most satisfactory method of printing slides is with an enlarger, which can be used to enlarge the image, when only a portion of the negative is desired, or to reduce it, as when it is desired to make a two inch slide from a four by five inch negative.

In printing by enlargement, place the negative in the enlarger in the usual way. Cut a piece of white cardboard the exact size and thickness of a slide. Place this in a corner of the enlarger easel and manipulate the enlarger until the image of just the portion of the negative of which a slide is desired falls on the white cardboard. Be sure and allow a margin all around for mask and binding tape. In this situation also it is best to place a mask over the slide while printing, to cut out stray light.

After the image from the negative is correct as to size and position, substitute an unexposed slide for the piece of cardboard and make the exposure.

Using the enlarger for reduction is not quite as simple, but presents no insurmountable problems. To make the size of the image smaller than the negative, a considerable distance between negative and lens is necessary. For instance, in order to reduce a four by five inch negative to a 2 by 2 inch slide, using a 5 inch lens, it is necessary that the lens and negative be separated by 15 inches. The bellows of many enlargers will not permit such a separation. For such enlargers tubes can easily be constructed which will permit the lens to be placed at a greater distance from the negative. The

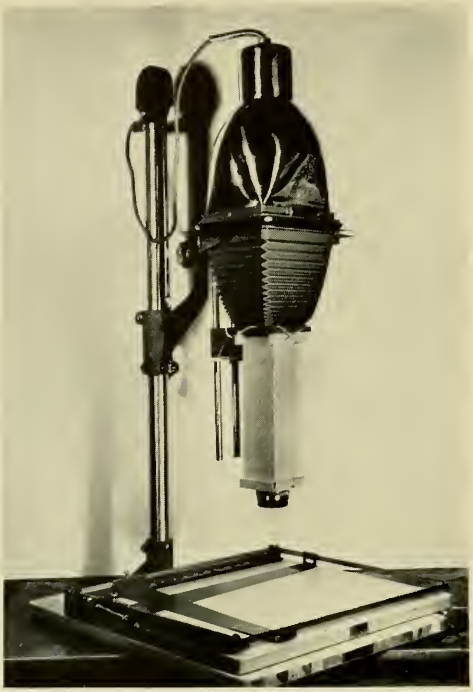


Figure 1.

When using large negatives for lantern slide making it is sometimes necessary to separate the enlarger lens a considerable distance from the negative. This can be done with tubes of wood, as shown in the above illustration. The tube, coated on the inside with black paper, is the same size as the lens board and fits into the bellows of the enlarger in the space usually occupied by the lens board.

writer has constructed these tubes of light wood, as shown in Figure 1. The end dimensions of the tube are exactly the same as the lens board and the tube thus fits snugly into the bellows of the enlarger, after the lens board has been removed. Two small crosspieces both keep the tube from going too far into the bellows and are used to tie the tube to the enlarger. The writer uses strong string to attach tube to bellows but other methods of attachment can be worked out.

The lens board and lens can be held in the lower end of the tube with string or rubber bands, which pass on either side of the lens and are attached to small screws in the side of the tube. Other methods of attachment can, of course, be used.

The writer lines the inside of the tube with black paper to make it light tight and reduce reflections. It can also be painted black. The required length of the tube will depend on three factors—the focal length of the enlarger lens, the greatest possible extension of the enlarger bellows and the degree of reduction that is desired. The shorter the focal length of the lens the shorter the required distance between negative and lens.

An idea of the necessary length of the tube can be obtained from the following table:

FOCAL LENGTH OF LENS	REDUCTION TO TWO-THIRDS	ONE-HALF	ONE-THIRD
4 inch	10 inches	12 inches	16 inches
5 "	12½ "	15 "	20 "
6 "	15 "	18 "	24 "
7 "	17½ "	21 "	28 "

The figures in the second, third and fourth columns of the table show the

necessary separation between negative and lens for making reductions of varying degrees.

In the case of a horizontal enlarger the same type of tube may be used, so long as it is supported at the correct height above the bed of the enlarger.

The person who desires to make only a few slides by reduction may prefer to make copy negatives of his pictures and then make slides by contact printing or projection of the copy negatives. This will be particularly appropriate where a good deal of hand work has been done on the print from which a slide is desired. Pin the photo on a vertical board and illuminate it strongly and evenly with diffused daylight or at least two photofloods. Place the camera on a tripod and focus the picture on the ground glass. If it is desired to make the slide by contact printing, take care that the image on the ground glass is just the size of the desired slide. If it is desired to print the slide by projection the image on the ground glass should be smaller than the slide.

For the copy negative, Eastman's commercial film or the similar films put out by the other companies should be used. By using this copy method, slides may also be made of half-tones in books, magazines and newspapers, enabling the photographer to illustrate talks or to build up a wonderfully interesting collection of slides on any subject that interests him.

Next month's article will discuss factors affecting exposure and development of slides, and various formulae.

(To be continued)

Figurines As Teachers

William S. Davis

Part VIII. Mirror Reflections

THE inclusion of mirror reflections with the objects themselves bring up interesting technical and pictorial problems as to treatment which must be solved, otherwise the photograph will be unsatisfactory. Technically, the primary consideration of a purely optical character is that

of properly focusing both the object and its reflection. From a strictly realistic standpoint, a reflection from a good quality mirror, unlike that from a less perfect surface such as undulating water, appears as clearly defined to the eye as the object reflected, though as a rule there is some slight loss of luminosity by reason of the mercury-backed glass absorbing a fractional amount of the light-rays before transmission. So, theoretically, both object and reflection should be shown in equally good focus. There are, however, exceptions where some diffusion of definition in the reflection is permissible, whereas, on the contrary, greater diffusion in the object than in the reflection is not acceptable, since it tends to destroy the sense of relative distances by bringing forward the plane of the reflection.

In focusing upon a subject, the beginner should avoid making the mistake of supposing that the distance from lens to source of reflection is identical with that from lens to surface of the mirror. Such is not the case, because no image actually exists on the mirror, its surface serving simply as a medium by which the light-rays received from the object are bent before transmission to the observer. Consequently, the focal distance of the reflection is that from lens to mirror-surface *plus* that from mirror to the side of the object reflected. This is shown in Diagram A, where the dotted line R,R, indicates the distance traveled by the reflection from object, O, to mirror, M, and thence to lens, L. The straight black line, OL, represents the shorter distance from L to O in focusing upon the object alone.

To bring both object and reflection into uniform focus with the least possible reduction in the size of the lens-stop to gain the required depth of focus, it is necessary to focus upon a plane somewhere between the object and the mirror. Generally, a spot approximately midway between these is best. When the image can be visually focused, something to focus upon may be set up temporarily at the spot determined upon, a card bearing distinct lettering or markings being suitable. After the chosen object is sharply focused it is removed and the lens opening gradually reduced until both object and reflection appear sufficiently sharp in the image. If focusing has to be done by scale, the best way is to set the lens for the distance to the imaginary point determined upon, then measure the distances of both object and reflection in accordance with the principle already explained, after which a table of hyperfocal distances should be consulted to find the correct size stop to employ. Failing this, dependence must be placed upon using a relatively small stop to be on the safe side.

Naturally, the nearer the object is to the mirror the less difference there will be between the distance traveled by the reflection and that direct from lens to object. This applies also to difference in size of the reflection compared with that of the object, as seen from the camera viewpoint, since relative size in the image is determined by the relative distance of object and reflection, respectively, from the lens. However, for compositional reasons it is sometimes impossible to bring the object extremely close to the mirror for the purpose of minimizing the differences mentioned. In such a case, it is well to remember that moving the camera farther away from mirror and object will help by lessening relative differences

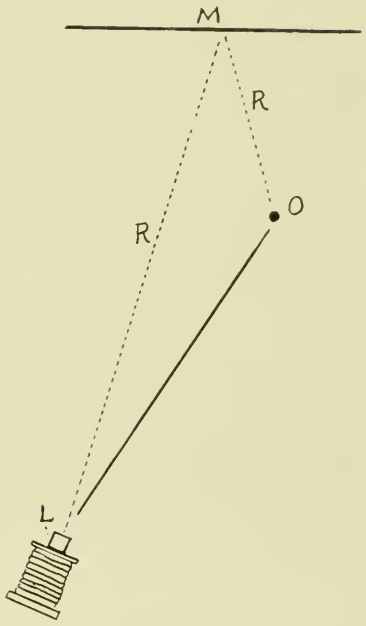


DIAGRAM A

of distance. If this entails inclusion of unwanted surroundings the matter is unimportant, as the desired portion may be enlarged subsequently.

In composing the elements for pictorial effect, it is essential to avoid division of interest between the object and its reflection. If the two are somewhat separated in the composition, interest should be concentrated upon one or the other. When object and reflection are so closely associated as to constitute a united mass the problem of divided interest generally takes care of itself, especially if there is enough tonal accent in some one area to hold the eye.

The angle of the viewpoint to one side, as well as the space between object and mirror, determine the lateral separation of the two images in the photograph; thus two different means are afforded for controlling the compositional spacing.

Since the mirror reflects the side of the object that is away from the observer, one may in a figure subject have the model's back toward the lens while the face is shown in the mirror, or *vice versa*. Or a profile position can be chosen, which, with the reflection, gives much the effect of a two-figure group. These are merely a few of the many combinations possible in treating material involving reflections, since varied amounts

Figure 1.

Figure 2.

of the subject matter may be excluded by the margins, the space occupied in the composition by the reflection limited by the size of the mirror used, etc.

Control of tone distribution is largely dependent upon management of the lighting, remembering that both the back and front of the object must be considered. Thus, when the portion toward the observer is in full light the reflection will show the other side in shadow, unless more than a single light source is used. This is generally a good arrangement if the reflection is of secondary importance. When, however, the light tonal accent is wanted in the reflection, that portion of the object toward the mirror should be illuminated, while the side next the observer is kept in shadow or at least less strongly lighted. Further control over the character of the tonal effect may be secured by careful selection of the background or setting which is reflected in the mirror along with the principal object. A portable screen covered with material of suitable tone is useful when placed alongside the camera at such an angle as to show in the mirror.

Turning now to our illustrations to bring out certain points: Figure 1 shows incorrect focusing, the mirror reflection being sharply rendered while the figurine was disregarded. The blurred image of the latter is not in harmony with the sharpness of definition in other portions of the photograph, though in the small halftone reproduction this may not be as noticeable as in the original print.

Figure 2 is identical in treatment with the first except in the matter of focusing. Here, sharp focus was first obtained on a plane about halfway

Figure 3.

Figure 4.

between the figurine and the mirror, and the lens then stopped down just enough to produce good definition throughout. To draw attention to the reflection, the source of light was located at one side and, as far as possible, in the space between mirror and figure, to get the most illumination on the front of the latter, but the limited space available with the small figurine used rendered it impracticable to prevent some light reaching around to the back of the figure. However, the figure is mainly in shadow, which serves to place the emphasis upon the fuller modeling seen in the reflected image.

In Figure 3 we have an example of a diffused reflection serving the useful purpose of furnishing a dark accent and rhythmic repetition of form, though entirely subordinate in interest to the figure. Better definition in the reflection might be permissible, though it would tend to lessen the strong sense of space now felt as existing between the figure and the mirror background. In this study, of course, the front of the figure facing the lens was lighted to the best advantage and the back kept in shadow to provide the dark reflection. Note that in this composition no use has been made of the mirror-frame, the entire "background" being a reflection of a screen placed alongside the camera in front of the figure.

Figure 4 indicates how a clearly defined reflection may be made to produce what is in effect practically a two-figure group, though by reason of nearness and tonal accent the figurine itself is the dominant element. In this photograph the dark frame of the mirror plays a useful part in the pictorial pattern.

Flat Glass In Photography

William J. Aull, Jr.

HAVE you heard the story about the photographer who paid $100 for his lens, and then——? But, perhaps we had better explain first. When the shutter clicks, light passes through the lens—a lens built up of optical glass, so well balanced in composition as to produce an image fine and true, and free from distortion caused by improper color correction or surface imperfections. If all goes well during development, following exposure, the photographer has a perfect picture—optically speaking, of course, in negative form. To print this negative, if by enlargement he projects the image through glass, then through a lens and onto the paper; if by contact, he sandwiches the negative in back of glass, allowing the light to pass through both glass and negative and onto the paper. In each instance the light *goes through glass.*

To go back to our story: The man paid $100 for his lens, and then wondered why he failed to obtain a print of $100 quality. Why? *Because a piece of 8-cent window glass had caused distortion in the printing process!*

Glass, to a photographer, is a tool that must be used over and over again, in a multitude of widely differing ways. To use this tool correctly, he should have a knowledge of its properties, it many varieties, and of what each will and will not do.

Simply because one is able to view an object through a piece of glass does not indicate that he will be able to photograph the same object through the same glass with the same results. This is especially true in the photography of colored objects or in natural color work.

Transmission and spectrophotometric values of all flat glasses may be obtained by writing to their respective manufacturers. A study of these

Fully exposed negative and print of a vari-colored rug over which has been layed samples of two popular types of plate glasses. Note the deepening effect of the heat absorbing glass, while the "Crystalex" changes the colors very little, if at all. The field of the rug was a bright blue.

tables will give a very definite picture of what each glass will do. To attempt to list them here would make the reading too uninteresting: and, besides, nearly all of the commercial flat glasses are practically worthless for use in photography.

Flat glass is obtainable in two well-defined forms—drawn and plate. The first is usually called "window glass" and is far from being flat, as many waves disfigure its surface, causing distortion. Plate glass is far superior for photography, as its rough surface has been ground off flat and then polished to the high lustre usually seen on the show windows of large department stores. There is a common fault—photographically—with both the window and the plate glass. This fault is that the glass, usually, has a green color. The color is not so noticeable in thin sheets, but in heavy plate, or when seen from the edge, it is well defined. This green acts as a filter, absorbing varying proportions of all light, but especially the red and the ultra-violet light. This absorption causes incorrect rendering of values and lengthened exposure—depending, of course, upon how the glass is used.

There is, to our limited knowledge, only one glass commercially available that will answer the photographer's need, both as to correct color rendering and high total transmission. This glass is patented and bears the

name "Crystalex Plate." It is of a color describable only as "water-white" and is actually so clear that, looking edgeways through a twenty-four inch sample, objects are seen as clearly and distinctly as though the glass was not there. If figures will bear any meaning to the reader, it has a total transmission of visible light of 91%—as compared with the 89% of regular plate, the glass will not "bloom" (take on a scum when used in a confined space). Experiments have shown that it can be used in photography by ultra-violet light. Its total transmission at this end of the spectrum is many times that of regular plate glass. Where lights having a high intensity in the ultra-violet are used for enlarging or printing, it has been found that printing times have been *decreased* as high as 25% when this glass was used. Lithographers and blue-printers have found this to be especially true.

In the realm of natural color photography, this glass should find many uses. Where exposures have to be made of colored objects, such as maps, water colors, or any objects which have to be held flat by glass, there should be no question about its practical value, since the light must pass through the glass twice—first to reach the subject and again to return from the subject to the lens. When colored transparencies are to be exhibited or re-photographed for reproduction, it should be demanded that this glass be used. The manufacturers report that Crystalex is made in two thicknesses ¼" and 7/64" (almost ⅛"). The 7/64" should be ideal for sandwiching transparencies.

We have been asked many times why it is not possible to manufacture a glass with 100% transparency. Perhaps some day it will be done, though we don't quite see how, since it is impossible to eliminate *surfaces*. Surfaces of glass reflect and refract light. In air, each surface of a piece of glass has a reflection value of approximately 4½%, or a total of about 9% for the piece. The best lenses have their various parts *cemented* together to eliminate surface reflection. The surfaces are still there, but the jumps from glass to air and air to glass have been lessened by introducing, in the form of cement, a material who index of refraction approaches that of the glass. Should they not be cemented, there would be an approximate 4½% loss each time the light passed through a surface. With a Protar or other complicated lens, the 4½% losses would add up to such a figure that the speed of the lens would be seriously impaired.

There is another commercial plate glass that is of a decided interest to the photographer. It bears the rather prosaic title of "Document Glass 1086." To the eye, it appears slightly yellow, about what a "K½" filter would look like—if there were such a thing. Perhaps, if it were used as a filter, it would have an action similar to that of the possible "K½"; but it actually goes much farther, by filtering out almost all of the photographically active ultra-violet, while retaining relatively good transmission in the violet and infra-red.

Document Glass was given its name, not because one could read old documents through it more readily (which is not the case), but because it is used to protect valuable paper, cloth, etc. from the destructive ultra-violet rays, that cause inks to fade and paper to turn yellow. The experimental or highly specialized photographer should find many uses for this

glass, as its opacity to the ultra-violet and high transmission in the visible and infra-red should open up a field where only small pieces of gelatin or glass, in the form of filters, could be used before.

While of little value to the photographer, except as a light screen or as an oddity, there is a black structural glass now on the market that is decidedly opaque to the eye, yet transmits 70% of the infra-red. Any number of tricks suggest themselves, such as photographing an object through an opaque wall, constructing a box of the material and photographing its contents without opening the lid, or screening the studio lights with the glass and making a picture of a group of people in relative darkness. It is our suggestion, should anyone be interested in obtaining this material, that they ask for glass that is ground and polished on both sides, for if one side is rough there will be distortion. It is obtainable in several thicknesses, from ¼" to 1¼". The ¼" thickness is the most practical, because on an "IR" type plate it will be necessary to adjust the exposure so that the picture will be made at a Weston speed of ¾. Of the several opaque black structural glasses made in this country, we know of only one that has the high transmission in infra-red. It is sold under the trade name of "Carrara."

Moisture A Subtle Enemy

Thomas Welles

MOISTURE and dust are the original "troublesome twins" of photography. Either can cause untold havoc! During the summer months dust is the great trouble-maker—in fall and winter, moisture plays the villain's role—and in more ways than you might imagine!

With the more obvious results of dampness, we are all, of course, familiar. These include, as principal sources of trouble, rust and mildew. But moisture has more subtle means of accomplishing its ruinous ends.

Have you ever gone to a friend's home on a cold evening to make a flashlight picture of his young hopeful, only to discover, on developing the film, that it appeared to be suffering from a severe case of chemical fog, or, perhaps, that it was hopelessly out of focus, despite the care you had taken on the latter point?

The reason was probably moisture!

In all likelihood, your *film* is not fogged; it was the *lens* that was fogged. And, if the picture is out of focus, it is entirely possible that this had nothing at all to do with your manipulation of the camera, but was caused by the film buckling.

The glass in your camera's lens is no different, in its reaction to cold and dampness, than the glass in your spectacles (providing, of course, you wear spectacles), or the windows in your automobile (providing, of course, etc.).

Figure 1. This picture, made just after the camera had been taken indoors on a cold winter day, shows the effect of moisture condensation on the lens. The overall fog was caused by a scattering of the light rays reflected from the subject as they passed through the thousands of microscopic droplets of water.

Figure 2. Made a few minutes after Figure 1, when the camera lens had reached room temperature, and was therefore no longer fogged.

When a cold lens is brought into a warm room—especially if it is raining outside, or even if the sky is merely overcast—moisture from the air immediately condenses on its surface.

The result is just as disastrous—temporarily—as if you had rubbed the lens with sandpaper! So the next time you see a photographer with his camera under his overcoat, clutched to his heart, don't think him crazy. He's simply trying to keep the lens warm enough so that it won't "fog" the minute he steps indoors.

The only solution, if the lens once gets thoroughly chilled, is to open the camera and wait patiently for the glass to approach room temperature, when, presto! the fog will disappear. Don't however, make the mistake of trying to hurry the process by setting the camera down near a stove or register. If you do, your costly lens will very likely be cracked and ruined!

Of course, the above applies to condensed moisture only. If you permit rain to strike your lens, and don't dry it immediately with a soft cloth or lens tissue, water may seep between the several elements of which the lens is made, necessitating a factory repair job.

As to film buckling: Gelatin expands greatly in the presence of moisture. And don't forget that if your lens is cold enough for moisture to condense on it, your film is in the same condition.

The result is obvious: as the gelatin emulsion expands, and its celluloid support refuses to expand with it, the film buckles outward. Careful warming of the camera to near room temperature will solve the problem, since, as the film becomes warmer, it will give back its "borrowed" moisture to the air, and consequently will flatten out.

Positive Development Control

Frank A. Holmes

THE miniature camera makes photography fascinating and convenient. It provides a capable tool that knows few limitations. As with many other good things there is a fly in the ointment. The increased use of diminutive negatives with the resultant necessity of making all prints by enlargement places a new emphasis on correct, painstaking technique. The tremendous possibilities of a precision instrument built with the greatest care are impossible to attain if steps succeeding the actual button pushing are deficient at any stage. Obviously this applies with special import to the development of negatives, where bad technique or carelessness may easily work irrevocable havoc, destroying at a stroke the work of days.

The treatment of miniature films differs from that of larger negatives in several important respects. Developers must meet the photographic requirements of brilliance, full emulsion speed value and gradation, as for all types of work, but must in addition meet the physical requirements of grain size preservation. Another major difference is that an entire group of negatives, though taken at different times under widely varying lighting conditions and of different types of subject matter, must be processed simultaneously with but little chance of variation to produce different effects in the individual negatives. Accordingly, films must be so developed as to consistently produce ideal average negatives. It seems to be the practice of many, if not most, devotees to flounder about in haphazard fashion, developing a roll or two in developer X, then a roll in developer Z, discarding them both in favor of experiments with formula Q, and ending with neither satisfaction nor knowledge of what their experiments have

meant. Working this way discourages dependable consistent results and is apt to lead to dissatisfaction with the miniature and its abandonment in favor of larger cameras.

On the other hand, it is true that a great many, certainly those who have been doing miniature work for some time, have standardized on one developer and use a more or less consistent technique. Yet, this is not the entire answer to the problem of uniformity. Many times, rolls developed in the same developer, specified development time and temperature closely followed, still show great variation in density and contrast. To the professional especially, a gamble on results is undesirable. Of course, it is always possible to resort to the use of intensifiers and reducers to alter sick negatives, but their use is just a further complication and is an unsatisfactory substitute for proper development.

Every photographer can entirely eliminate guess work from exposure by using a reliable meter which accurately measures the strength of the light reflected from the various tonal areas contained in every subject. But development is yet a hit or miss photographic procedure depending on the personal elements of experience and skill to produce predictable results.

Many troubles arise from lack of uniformity in negatives. Many photographers' negatives change with the weather and the age of their developer so that one roll of films may have just the right degree of contrast to make excellent prints on a medium grade of paper. The next roll may be underdeveloped or overdeveloped so that either a hard grade or a soft grade must be used. Then another roll may be very hard to print because one grade of paper is too soft for a good print and the next grade is too contrasty. This calls for tedious and uncertain juggling of developers or extensive dodging to make a good print. Naturally, these variations complicate and slow up production and in the end are reflected in the quality of the prints. It is plain that printing would be simpler if all negatives could be controlled so that their contrast and density were nearly alike.

There are several ways to go about accomplishing this result. A method that seems to have some following is to develop the films by following their progress in the developer visually, inspecting them occasionally with a very weak light, stopping development when the image appears to be of the desired intensity.

In practice this is very difficult. Judging the proper density of an uncleared negative with a very weak light is no easy task. I tried it for some time, desensitizing the film to such an extent that a quite bright light could be used close to the developing film without fogging. It may be possible to get good negatives that way with enough experience, but it is more apt to be accidental. It does provide a certainty that the film will bear an image, but the contrast and density of that image is more than likely to vary considerably from batch to batch. Visual judgment is based on apparent density which varies greatly with changes in type of subject, and it is hard to tell anything by the weak light that must be used.

The first step in the systemization of the developing routine is standardization of all variable factors. That means, select a good film, pick a

developer and stay with them until you are dead sure another combination will work better for you. Then by using the system I shall describe presently, you can easily decide just what kind of negatives you like best and can be absolutely certain of getting negatives just like those every time.

The equipment necessary for the practice of this type of development control is simple. It consists of an easily constructed box containing an electric light. The only other essential is a Weston, or other electric, exposure meter. The light box may be of any suitable material such as wood or wall board. The exact dimensions do not matter, but it may be conveniently about a foot high and eight or ten inches square. Inside the box wire a socket for a standard sixty watt light bulb. On the top of the box cut a hole somewhat smaller than a single picture area. Mine is about three fourths by one inch, exact size not important. This opening is to be used to illuminate the test frames while interpreting them. For convenience and exactness, registration pins for the film are provided. Lay a piece of film centered over the opening so that none of the perforations are included. Then select four perforations in convenient places and mark through them with a pencil. Drive wire nails through the box top from the bottom so as to pass through the pencil marks made. File the points down and smooth and round them. You will then have four pins on which the film may be placed to automatically hold it in place over the opening.

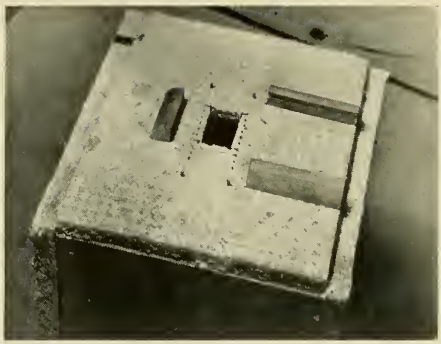
Turn on the light in the box and place the Weston meter over the aperture, moving it about slightly to locate the position of maximum deflection. When the right spot is reached, mark a line around the meter and then place guides to hold the meter in the proper place. The guides may be small strips of wood screwed or nailed to the cover. This completes the construction of the light box.

The principle of development control is in use in motion picture laboratories constantly as a matter of course, but is seldom applied to still photography outside of precision color laboratories because of the expense of the instruments designed for the purpose. For our use, however, such instruments are unnecessary and inexpensive substitutes will do almost as well.

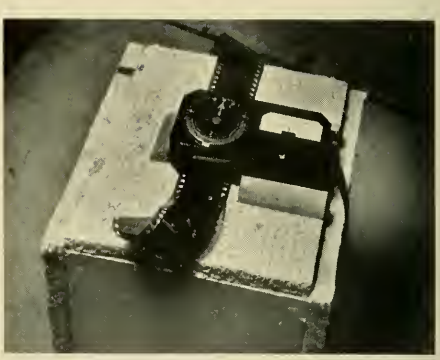
This system, known as sensitometry, is based on several definite premises. A certain exposure on a given film, will appear slowly during development as a deposit of light density and as development progresses will gain in strength until a maximum is reached, such maximum varying with the exposure and the energy of the developer.

No matter the exact length of development, a series of exposures within the latitude of the film—that is, over the threshold exposure and under the maximum recordable exposure—will show on the developed film a series of semiproportional deposits. The lightest exposure will produce the least deposit, and the heavier exposures will result in increasingly heavier deposits.

A short development shows the heaviest exposure as a deposit but little heavier than the lightest deposit. The longer the development the greater the separation so that with prolonged development the lightest deposit will be thin but the heaviest will be dense and nearly opaque.



Light box showing light aperture, film registration pins, and meter guide pieces.



Light box in use. Taking a reading with film and meter in position and light turned on.

This is the effect of variation in development time, the control of contrast and density for a given exposure.

Every photographic subject may be broken down into a pattern of tonal areas of various intensities ranging from dark shadows to brilliant highlights. When we set about determining the characteristics of our negatives we find that the individual parts of an actual picture are too small to be measurable without special equipment. So for our experiments, we pick out the separate brightness values of the picture, and then use separate whole negatives for these different tones, by filling the entire negative with an all over even intensity of light and then varying the exposure for each.

To get a clear picture of what happens to the negatives during our development, we must observe the effects of a minimum exposure, a very heavy exposure, and steps in between. These in between steps are infinite in number, of course, but for study three will be enough. Now the question of just what steps to use and how to determine them on the film. If we start with the practical minimum and progressively double the exposure, we arrive at the series 1, 2, 4, 8, 16, 32, 64, 128. These eight steps may be regarded as the exposure range of the average film, 1-128. To determine the proper series of duplicable exposures to use, we turn to the Weston Universal meter and calculator.

The calculator dial has a movable sector bearing four symbols, "U," "A," an arrow, "C" and "O." For average subjects it is common practice to determine picture exposure by using the arrow opposite the general scene reading and using the exposure indicated. Each of these five symbols occupies a definite position on the exposure scale. If the "U" is taken as unity, the five bear the relation of "U"-1, "A"-8, "B"-16, "C"-32, and "O"-128. These are five of the positions on the progressive scale and since they are easily determined and are representative exposures, they are the steps we use for our tests.

When the large arrow, or "B," is placed next the reading from any

uniform tonal area, the actual exposure on the film will always be exactly the same whether the light is weak or strong. The stronger the light, the higher the meter reading, consequently the less the exposure and the same net result on the film. If the "A" or "½" position is moved to the same reading, the exposure will be only one half that if "B" were used but will always be uniform. Similarly, by using the five dial positions in succession we obtain five absolutely reproducible exposure steps. The film speed must be set properly or part of the 1-128 scale will be too high or too low to be recorded. These five exposure steps will always have the same relative exposure and so the only factor that can produce variations in the final densities will be differences in development. If this series of known exposures can be developed at different times to show identical results both as to contrast and density, the two developments must be equivalent, though performed in different batches of developer in different stages of exhaustion and it follows that any pictures developed at the same time should be uniform.

Now for a description of the actual making of tests. Select a plain area at least several feet square that may be evenly illuminated. This may be a wall, or a large piece of cardboard or anything else of perfectly even tone. It is preferable, though probably not essential, that the area selected be of neutral tone, grey or white. When such an area has been selected, place it, if movable, in such a position that it may be easily illuminated and photographed. The illumination must be very even but need not be intense. The lights should be placed far enough away so that their rays will blend evenly and uniformly. With the illumination arranged, set up the camera to photograph the test square. Line up the camera so that the image on the film embraces a section within the outer limits of the lighted area. It is well to have the camera on a tripod, so that all tests will be uniform and balance any possible irregularity. The camera may be focused on infinity to further smooth out possible irregularities in the test sheet.

Set the meter calculator dial for the recommended emulsion speed, varying to fit the light source, whether daylight or artificial light. To make all steps clear, I will describe an actual test with figures that occur in this case.

We are using a white screen for the test area. The film in the camera is of the supersensitive panchromatic variety, and the illuminant is a pair of photoflood lights. The meter reading is found to be twenty candles. We set our calculator dial for an emulsion speed of sixteen. For the first exposure, the minimum, we move the "U" on the dial to a position opposite our reading, 20. Then we select a convenient shutter speed, lens stop combination and make the first exposure. This could be 1/100 second at f:8. For the next exposure move the "A" on the dial to the same position, 20, and again choose an appropriate combination. In this case we select 1/100 second at f:2.8.

Having made the exposure, we again change the calculator, moving "B," the large arrow, opposite 20. For this exposure we leave the diaphragm at f:2.8 and change the shutter to 1/50. The next exposure is made the same way with the "C" opposite 20. This is 1/25 at f:2.8.

The next and final exposure is made with the "O" at 20. We find that this is a heavy exposure and none of the available speeds quite match the diaphragm markings, so we choose the time exposure, 10 seconds at f:22.

This completes the actual test, but for future use I find it a good idea to photograph a small slate of the dime store variety on which is written in bold letters the pertinent information including the type of film, type of light used for the test, film speed used, kind of developer to be used and, if known, the time and temperature for which that test roll will be developed. Also include on the later tests the number of rolls that have been developed in that particular batch of developer. Of course, any piece of paper may be used instead of a slate, but at any rate, the information on the film is useful in eliminating later confusion.

We have now used five frames of film, plus one if the slate was added. Wind the film to the next frame and with the lens capped press the release. This leaves a blank frame separating the test from the rest of the roll so that it may be cut off and filed after processing.

The roll may be finished in the usual manner. When it is complete, it is to be developed in *fresh* developer for the exact time at the exact temperature recommended for the particular film used. This should be done very carefully as the results of the first test serve as a control for future tests.

Especially during the winter when the temperature of the room in which the developing is done is apt to be below that used for the solutions, there is a tendency to bring the temperature of the solutions to the proper point and then proceed with development for fifteen minutes or a half hour while the temperature of the developer slowly comes down to the level of the room. Any such temperature change, of course, alters the final result and is to be avoided. The best and most practical way to avoid serious temperature changes is to have the solutions in water jacketed tanks. This is neither expensive nor difficult. If small metal tanks are used, the tanks may be placed in a tray with water at the same temperature added to surround the tank and the solutions not in use. Where only one tank is used and the solutions poured in and out, the other solutions, short stop and hypo, may be kept in the same tray in their bottles. A thermometer in the tray will show when to add hot or cold water, and the tanks will stay absolutely uniform.

We now make use of the light box to interpret our previous tests. Place the meter over the opening in its proper position. It may be necessary to zero adjust the meter in this position. This is done by turning the small screw just below the indicator face, bringing the needle to zero with the light turned off. When this adjustment is made, turn on the light and note the reading. For convenience, it should be somewhere between two hundred and five hundred. If it is much below this, replace the light with one of different strength.

Write the meter reading on a sheet of paper. Next place the test film on the box with the blank, unexposed but developed frame over the opening. The light that reaches the meter must now pass through this clear film and the meter reading will be reduced. On the paper note this reading, properly labeled. Now in turn take similar readings for each of the

exposed test frames. When these are completed, we may turn off the light and translate our readings.

A typical set of readings will run something like this, varying with the film, developer and developing time.

No film	500
Blank film	165
"U"	145
"A"	50
"B"	35
"C"	16
"O"	3.5

These figures to be easily compared and used for reference must be converted to read directly in terms of the proportion of incident light transmitted by the silver image. The difference between the readings of 500 for no film and 165 for blank film represents the amount of light absorbed by the film base and development fog. In this case two thirds of the light is absorbed. Using this blank reading for a denominator, we can convert the readings to transmission percentages. The final figures then will read

U	88%	145/165
A	30%	50/165
B	21%	35/165
C	9.7%	16/165
O	2.1%	3.5/165
Base Transmission	33%	165/500

Since this strip was developed in fresh developer for the proper length of time and at the proper temperature, it represents ideal development and so is to serve as a standard for all future development. It should be filed along with the data on type of developer, length of development. temperature and any other information desired.

On each succeeding roll of film make a test just like this one and develop it as usual. After each roll has been developed, make readings in the same way. These are to be compared with the original or standard to determine whether or not the development has been as it should. There are three causes for variance; overdevelopment, underdevelopment, or use of exhausted developer. The figures obtained will show by comparison with the master figures whether the ideal conditions are being maintained. Several later tests might give transmission percentage readings like these:

	STANDARD	TEST II	TEST III	TEST IV
U	88%	61%	92%	98%
A	30%	25%	66%	43%
B	21%	8.6%	49%	26%
C	9.7%	2.8%	38%	12.3%
O	2.1%	.9%	16%	2.8%

Looking at the figures for test number II we see that all the figures are lower than the standard, with some increase in proportional separation between the steps. The increase in separation represents an increase in

contrast and the lowered values indicate an increase in density, both of which point to overdevelopment. To correct this, the developing time should be reduced for the next roll and another test run. The test on the next roll may turn out as indicated by Test III. Here all the figures are higher than in the standard, with much less proportional separation between the steps and very low density even for the heavy exposures. This points to underdevelopment and means that the developing time should be increased.

Test IV is of a different nature. Here the figures are all high but there is no increase in contrast. Rather, the figures are a little more widely separated than in the original standard. The very noticeable distinctive feature of this particular test is the very high value of the lower exposures with almost no density for the "U" reading. This is a case of a loss of emulsion speed. The "U" reading represents the shadow detail in average pictures and this loss of speed will cause loss of shadow detail. When the tests turn out like this, the developer is exhausted and should be discarded and replaced by fresh solution.

If these tests are run through the life of several batches of developer, and careful notes kept of the result, the adjustments necessary for uniform development will be accurately determined and the tests need then be run only once at the beginning of the use of each fresh batch of developer. Here it will catch any error that may have been made in compounding.

So far we have covered the method used to make tests and their value in maintaining uniformity in results with one film and one developer at one temperature. Their use by no means ends there. It is often very important to know exactly what effect changes of temperature have on degree of development, where it may be necessary at times to vary. Make tests in the same way and develop them at the different temperatures. When the readings are made they will show positively what adjustments in developing time are required. Developing at too low a temperature will often cause loss in emulsion speed while too high temperatures are apt to cause fog. These are quickly indicated with the meter readings.

Another field in which much misinformation exists is in the comparison of different developers. With so many different developers available, and so many different claims being made, it is almost impossible for the amateur to get an accurate unbiased opinion of the actual comparative effect of the different solutions. Run these test strips in different developers and see for yourself what the results are. It is hard to fool the meter.

In making these tests with different types of developers, there is one point to watch and that is the matter of tone. Warm brown tone images have a greater effective density than neutral black and this must be taken into account. To properly compare several tests like this, make a light gray paper print from areas that give the same meter reading, using identical exposures for the prints. If the prints don't match in tone, determine how much difference there is by making other prints from one of them with different exposures. The ratio of the exposures necessary to make identical prints must be computed and applied to the direct readings to make a fair comparison between the developers.

Cinema Section

Edited by

William A. Palmer

Slightly Historical—About Film Widths

THE present day 8 mm. film is considered to be a very great technical achievement. In this film width we have a series of pictures, each approximately $\frac{3}{16}$ of an inch wide, which can very readily be projected with a 500 watt projector to a screen size of five feet and give a very brilliant clear picture. An enlargement of $\frac{3}{16}$ of an inch to five feet in width is an increase in area of approximately 100,000 times! Certainly it is an achievement which sounds like a typical triumph of modern technology.

Yet the Thomas A. Edison Company patented in 1897 and shortly after the turn of the century sold in considerable quantity a machine called the Edison Home Kinetoscope which had a picture size almost identical with the present 8 mm. film! The Edison Kinetoscope was purely a projection machine for the home presentation of professionally made films of the day and did not enable the owner to take his own films. The projection machine was a small portable unit driven by a hand crank and used as its light source a small arc which required the operator to continually feed more carbons as it burned. The film was about $\frac{7}{8}$ of an inch in width and contained three rows of pictures. In operation the machine was cranked forward while the first row of pictures on one edge of the film was shown. When the end of the roll was reached (usually less than a hundred feet in length) a nob was turned which shifted the whole mechanism to the center row of pictures, whereupon the operator cranked backward until the film was back to the starting point. Again the nob was turned to shift the mechanism to the final or third row of the picture and the operator cranked forward to finish that film. Thus one length of one hundred feet would be run through the mechanism three times. It is curious that Edison's ingenuity in making this early substandard amateur film prompted the choice of three rows of pictures instead of two or four, since an even number

would have finished the show with the film rewound, ready for another run. As it was, the three track film is reminiscent of the man who claimed he always swam the river three times before breakfast causing the curious to wonder why he didn't swim it either two or four times so as to get back where his clothes were. Nevertheless, in operation the little Edison machine was remarkably successful and the film amazingly good having almost as much detail and as fine a grain as the 8 mm. Incidently, the film was made of safety base and therefore was no fire hazard in front of the very powerful little arc lamp.

The problem of the present day amateur in choosing between 16 mm. and 8 mm. film is nothing by comparison to the problem surrounding the choice of a standard in the early days of motion picture work. In the 1890's when the development of the art was in full force, the matter of film width was in a completely chaotic state. Each experimentor had his own pet film width and therefore it was impossible for the film made on the camera of one inventor to be projected on the machine made by another.

In general the film widths used at the start were very much wider than anything considered today, the average width being somewhere around two inches. This was probably due to the fact that the earliest presentations commercially were in the penny peep-show machines such as those made by the Biograph and the Mutograph companies. These machines did not project the movies but the pictures were inspected directly through a magnifying glass. The film width was 2¾ in. wide. The cameras which made this large film must have been impressive in operation for they were really small manufacturing plants making use of a roll of unperforated film 2¾ in. wide and exposing it with the aid of perforations made at the time of photography and at the rate of around thirty pictures per second. The problem of handling such a mass of film at such a high rate of speed is a considerable one, yet these cameras were able to make a complete film record of the Jeffries-Sharkey fight which was held at Coney Island in 1899, a fight which lasted for 25 rounds of three minutes each. Moreover, the fight took place at night and was successfully photographed by this early equipment by aid of strong arc lights. There were four cameras used so that the record could be continuous when one of the cameras ran out of film or the film buckled and jammed as it frequently did. As a help in the operation and detection of trouble in the film movement, the cameras had a ruby lamp mounted within them so that the operator could watch how everything was going on inside. This light, of course, could be quite brilliant inasmuch as the film of those days was completely nonsensitive to red light. The total amount of film used to film this event was about 40,000 feet, a length which makes even a print of "Gone with the Wind" look like an advertising trailer.

When the projection machine came into more general use so that the presentation of motion pictures was out of the peep-show class, the early workers began using narrower film widths. The two most successful operators in those days were the Edison Company in this country and the Lumiere brothers in France. Both concerns started producing film in fairly large quantities and their projection equipment was considered to be of the best. By merest coincidence it was then discovered that the standard independently arrived at by Edison and Lumiere coincided to within 1/1000 of an inch! The only difference in the films being that Edison's film, which was the present 35 mm. theatrical standard, had four perforations per picture while the Lumiere

film of the same dimensions had only one set of perforations similar to the present 16 mm. film. It was therefore only necessary for Lumiere to reperforate his films to enable him to run on Edison machines, whereas the Edison film could run on Lumiere machines without alteration. Thus with the help of a miraculous coincidence the present 35 mm. standard film was achieved. All the other film widths which had been advocated in those days had to take a back seat and finally were discarded.

For about twenty-five years the 35 mm. width was the only one used to any great extent until the idea of amateur movies came up again shortly after the World War. The two requirements of a film for amateur use, that it be inexpensive and not subject to fire hazard were not fulfilled by the 35 mm. film. While it was possible to obtain safety film in the 35 mm. width, a projector for home use to use that size would frequently be used for the inflammable film with the attendant fire hazard. Therefore for a few years several companies, particularly the Victor Company in this country and the Pathé concern in France sponsored an amateur and commercial film width of 28 mm. which was made only in safety stock. This eliminated the fire hazard but was almost as expensive to use of the 35 mm. film.

In the one or two years preceding the development of 16 mm. film several concerns had made an attempt to manufacture equipment using 35 mm. film slit in half or a 17½ mm. width having perforations on one side similar to the present 8 mm. film. This arrangement reduced the cost of the film a great deal but did not eliminate the possibility of using nitrate film and therefore retaining the fire hazard conditions.

Eastman Kodak then came out with the 16 mm. standard which has never been manufactured in any but safety stock and at the same time worked out the present reversal method of film processing whereby the film which runs through the camera is turned directly into a positive for projection. Slightly previous to the 16 mm. film, the Pathé Company in France had developed the 9½ mm. Babe Pathé later called Pathex in this country. This film made use of a unique type of perforation in the center of the film rather than on the edge and had a picture size almost the same as 16 mm. with less width of film stock. Partly because the 9½ mm. size was not backed by as large an organization or as complete a service in this country, and partly because the equipment for the 16 mm. was superior, the 9½ mm. size never took hold very well. In Europe, however, when people were still shooting cameras the 9½ mm. was still quite popular.

The 16 mm. film width was a success right from the start when it was introduced about 1923 and the matter of film width became quite stabilized for the next few years until the development of professional sound films. The earliest sound pictures displayed by Warner Brothers used the same standard 35 mm. film of previous silent pictures, synchronized with separate discs, but it was a very short time until first the Fox-Case Corporation and then others such as Western Electric and R. C. A. brought out the present sound-on-film systems which were more practical than the discs.

The fact that the sound track sliced off almost ⅛ of an inch from the picture area changing the proportions of the picture size prompted Hollywood in 1929 and 1930 to consider going back up the ladder of film widths and create a new standard. For those two years again, the matter of film width became chaotic,

each group or studio championing some type of wide film which varied from 65 mm. to 70 mm. in width. The 70 mm. width, called the Fox Grandeur film, was almost the same in dimensions as the early Biograph film which recorded the Sharkey-Jeffries fight except that the picture height was not so great.

There were two main objectives in the wide film experiments in the early sound days; one was to obtain more room on the film for a sound track and the other was to re-establish a more rectangular picture proportion, even extending the width to make a proportion which some advocated would be far more adaptable than a near-square shape. The accompanying sketches show the comparison of actual sizes of film frames of the early 35 mm. sound on film pictures and the 70 mm. Grandeur film.

The additional cost involved in production and release prints, and the difficulties of having to replace all the theater equipment for the wider film caused the movement for its use to die. Shortly thereafter the earlier proportions of the silent 35 mm. film were re-established by the simple expedient of masking the frames, top and bottom, and leaving a wider frame line between pictures. This required a slightly greater magnification of the film on the theater screen, but the improvements in film emulsion with finer grain and greater uniformity have more than made up for the loss in area for the professional theater pictures.

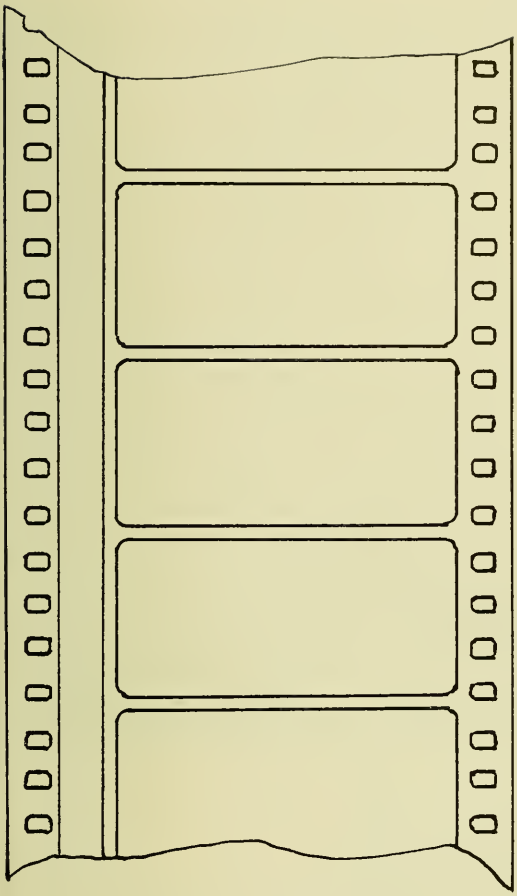
At the present time the film business has been stabilized to include the three standard film widths—35 mm. for theatrical release, 16 mm. for commercial films and advanced amateurs' use, and 8 mm. for strictly amateur use, and it seems unlikely that there will be further changes for some time to come. Yet it is possible that some day from the theatrical standpoint this might happen for there are two developments which are experimental successes at the present time and which may some day be added to theatrical pictures, and these would demand a greater film width than the present 35 mm. standard. One is an improvement in sound recording whereby the sound track would become both "push-pull" and "stereophonic." The other would be in making the picture "stereoscopic." In the case of the sound there would be required four sound tracks in place of the present one and in the case of the "stereoscopic" picture there would be required two films in place of the present one. While it is conceivable that all these could be put on the present width of 35 mm. film the greater width of a 60 mm. or 70 mm. standard would make the problems much less imposing.

If then, in the future you hear of a proposed new standard of film width, you can consider it old stuff inasmuch as in years past there have been film widths proposed of 8 mm., 9½ mm., ½ in., 16 mm., $\frac{11}{16}$ in., 17½ mm., ⅞ in., 28 mm., 35 mm., 2 in., 2½ in., 2⅜ in., 2¾ in., 60 mm., 63 mm., 65 mm., 68 mm., and 70 mm.

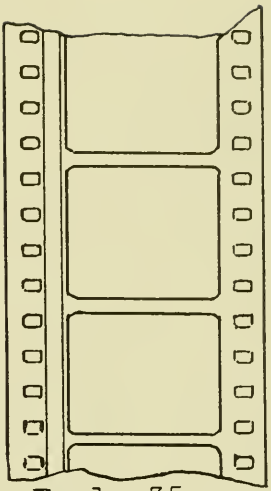
Questions and Answers

Question: How can one tell whether light is going to hit the camera lens and cause a flare?

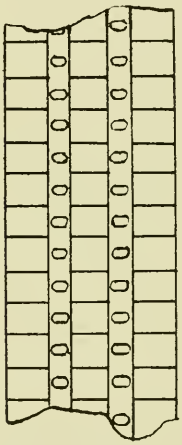
Answer: Placing the camera in the exact position in which it is to take the picture, if no strong light strikes the *glass* of the lens, there should be no flare. Light striking the inside of a good lens shade should cause no flare.



70 mm. Grandeur



Early 35 mm.
Sound-on-film



3 track Edison
Kinetoscope Film

Various film sizes, actual size

"Time Out of Mind" — *Axel Bahnsen, Yellow Springs, Ohio*

First Award—Advanced Class

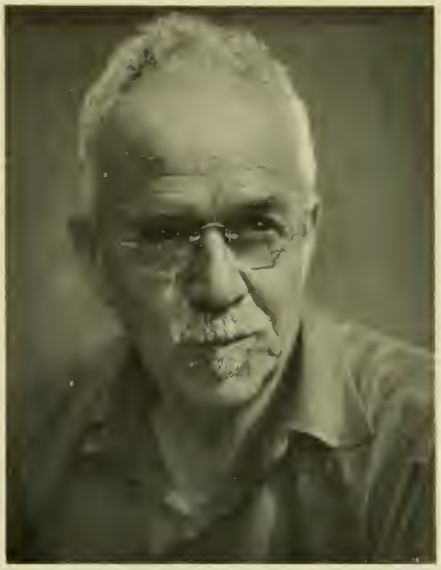
■ There are surrealistic elements in this picture but they are used very sparingly and with great restraint. It seems to us that such ideas are best applied to photography in just this fashion. There is no limit to the painter's departure from reality, but the factual nature of the camera image places very considerable limitations upon the photographer's use of surrealistic suggestion and symbolism. The photographer must convey his suggestion through actual things which can be photographed, while the painter is limited only by the fertility of his imagination. If the photographer attempts too elaborate an enterprise he is rarely able to conceal the processes of construction and these intrude themselves upon the picture. We have only a crudely constructed miniature stage set instead of the reality with which photography can best deal. The shell here strongly suggests a fantastic head with a leering demonical mouth. It suggests this but if one feels called upon to look closely it is undeniably a shell with nothing phony about it. It seems to us that photographs in this vein should be able to stand such a test.

The shell is here contrasted with the head of a lovely girl. Each individual will interpret the meaning of this picture in a slightly different way. That is as it should be for part of the purpose of surrealistic picture making is to present a puzzle, which each observer can have the fun of solving for himself.

Data: 10½ x 13" bromide print, toned brown.

Second Award

Advanced Class



"*Dr. Zabriskie*"
Fred Herrington, A.R.P.S.
San Francisco, Calif.

■ We would have to look far to find a more thoroughly satisfying piece of outdoor portraiture than this. The pose and spacing are very fine indeed, the lighting is splendid, the print has a beautiful rich tonal quality that is a delight to the eye and the expression is marvelously revealing. Here we see a man, wise, kindly, cultured; with a sense of humor developed through understanding; quite obviously a man who has done his share of important work in this world. The picture tells us all of this and in addition gives pleasure to our esthetic sense through its beautiful tonal harmonies and fine space relationships. And that is all that one can ask of any picture.

Data: 3¼ x 4¼ Graflex D; 6¼" Tessar; 1/5th sec. at f:6.3 on Eastman Kodak Panatomic X in DK-76; outdoors in shade with open sky overhead; 11 x 14" print on Gevaluxe in GD-61.

Third Award

Advanced Class

"*Snow Hummocks*"
Cedric Wright.
Berkeley, Calif.

■ Mr. Wright has discovered some unusual and interesting subject matter and has photographed it most skillfully so that texture and detail are superbly rendered. The snow forms converge toward a point on the horizon and this fact helps greatly to unify what would otherwise be rather chaotic material. The sky is very active and dramatic because of the strong contrast between sky and clouds. For us it is a bit too strong, tending to compete unduly with the principal subject matter. An entirely clear sky would be all right from this one point of view, but would set up an awkward dark band across the top of the print. It would be better, we think, to have a sky which was fully covered by fairly smooth clouds, except for a rather small opening at the point on the horizon toward which the snow hummocks converge. Such a condition would relate the sky and foreground compositionally by placing points of emphasis together. It is plain that Mr. Wright has worked toward just such an arrangement, but apparently could not get the clouds to behave just right. We would have about the arrangement we imagine if the breaks in the clouds at the upper left were filled in and if the clouds reached down to the horizon on the right.

Data: Agfa Isopan film; 8 x 10" print on Agfa Brovira Glossy.

Fourth Award

Advanced Class

"Vacationeer"
William A. Garnett,
Pasadena, Calif.

■ One can derive many humorous suggestions from this face but to us it pictures the vacationer who has worked so hard at his vacation that he is going to need a vacation to recover from his vacation. Or perhaps a simpler interpretation would classify this as that tired but happy expression engendered by a strenuous day in the out-of-doors. It doesn't make much difference what you see as long as you *do* see something interesting and amusing. That is the measure of the success of the picture. Observe how the tilting of the head helps to add movement to the picture, and how this same tilt combined with the strap on the model's right shoulder suggests a burden that is beginning to feel much heavier than it should. This little touch helps greatly to clarify the central idea of the picture. We are glad to see that the head has not been crowded in the picture space and that ample supporting material has been maintained along the base.

Data: Rolleicord; Eastman Kodak Panatomic film; 1/50th sec. at f:22, with G filter. Deep blue New Mexico sky.

Fifth Award

Advanced Class

C. Stanton Loeber,
San Francisco, Calif.

■ With material such as this we can adopt one or the other of two approaches. Make a picture in which the boat tells practically the whole story and the water serves only as a background, or strive for an interesting pattern in the water and use the boat only as a point of emphasis. In the second case, of course, the boat would need to be quite small in relation to the picture space. The choice, quite obviously, would depend upon which part of the material carried the greatest interest value and upon whether the boat would come in large or small with available lenses and camera positions. The essential thing, of course, is that the picture must very definitely do one thing or the other. The difficulty here arises from the fact that the size of the boat makes the first course almost mandatory, but the boat is weak in interest value in comparison with the interesting light passages on the water. This results in a certain ambiguity—a sort of division of interest. The solution is suggested in the two approaches mentioned above. With such interesting water it would appear that a small boat would fill the bill most successfully.

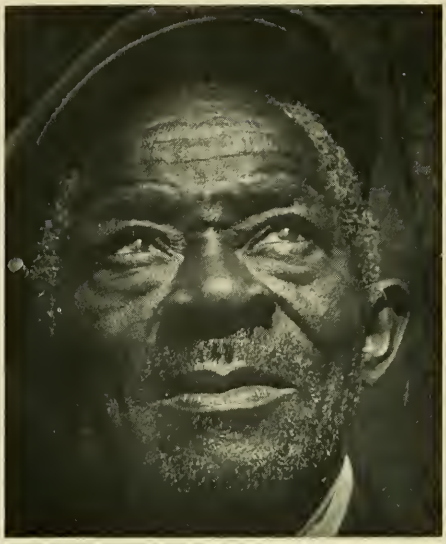
Data: 3¼ x 4¼" Graflex D: 6" Tessar; Eastman Kodak Panatomic X in DK-50; 14 x 17" print on Defender Velour Black DL, in 55D; Barstone toner.

"Winter Snow" *S. Peter Miller, New York, N.Y.*

First Award—Amateur Class

■ It seems to us that Mr. Miller has handled this material very nicely. The snow is caught just right so that its general effect is well conveyed. Notice that the exposure has not stopped movement in the falling snow. When that is done the impression of falling snow is lost and the picture takes on an artificial, speckled appearance. A major difficulty in photographing city traffic is to find a sufficiently simple arrangement. Notice how Mr. Miller has handled this problem. He has made the bus occupy as large a part of the picture space as possible; has filled in the upper right with a secondary bus, which echoes rather than conflicts with the principal object; and finally the snow helps greatly to obliterate unwanted detail in the background. It is too bad that the exposure could not have been made a fraction of a second later so that the man about to enter the bus would be in the act of stepping aboard instead of standing stock still. It seems plain that the effectiveness of the picture would be enhanced if the figure could be made more important not only through being shown in action but also through being differentiated from the bus more clearly through tonal contrast. Best solution would probably be to park a particularly tolerant friend out in the snow until he was well covered with it, and then to use him as a model.

Data: Contax III; 1/100th sec. at f:4, on Eastman Kodak Plus X in Eastman Kodak DK-20; 10½ x 13" print on Defender Velour Black, in 55D.



Isadore Berger,
Detroit, Mich.

Second Award

Amateur Class

Mr. Berger has shown enough fine portraits in these pages to prove conclusively that he has a fine talent for finding particularly effective and revealing expressions in his subjects. That quality is readily apparent here. In the present print, however, we do not feel that the composition is quite as successful as was the case in previous pictures shown in these pages. The head appears to be unnecessarily crowded in the picture space. As a result of this the bit of white collar acts as a distraction. Partly because of its fragmentary nature and partly because of its position at the base of the print. With more space all around, this element could be more easily controlled.

Data: Rolleiflex; Eastman Kodak Panatomic X in Eastman Kodak D-76; 9 a.m. outdoors; 14 x 17" print on Eastman Kodak Vitava 3 in D-52.

"The Old Stone Wall"
A. S. Mawhinney,
New Rochelle, N. Y.

Third Award

Amateur Class

This picture has fine technical quality, interesting subject matter, and presents some nice problems in composition. Observe these points. The branches which run in at the top add nothing to the picture and look rather tacked on. The fact that the far end of the stone wall ends almost exactly in the center of the picture creates a static condition that greatly decreases the feeling of movement in the picture. The tree area to the right of the wall is rather blank and uninteresting. Our two points of emphasis (aside from foreground detail) are the point where the wall ends and the patch of bright snow beyond the trees in the upper left. An essential factor in our arrangement then is to get these two points in strong positions in our picture space and so disposed that they will balance each other. We can accomplish just that by trimming in from the right to the first large tree and down from the top until the branches which run in from the top are eliminated. Notice that this brings the two points of emphasis mentioned into nice relationship with each other and that the feeling of movement in the picture is much more pronounced.

Data: Leica G, with 35 mm. Elmar; 1/100th sec., at f:6.3 on Eastman Kodak Panatomic X. in X-33; 13 x 16" print on Eastman Kodak Kodalure, in D-52; Gold Chloride blue toner.

Fourth Award

Amateur Class

D. Chiesa.
San Francisco. Calif.

■ For the most part Mr. Chiesa has done a good job of arranging this material and has photographed it well so that textures are nicely held. Ideally we think that there should be something (leaf or tendril) to break up the triangular area in the upper left and we think the feeling of movement would be stronger if the larger tendril were slanting downward instead of running horizontally at the point where it leaves the platter. We can also visualize some slight adjustments in the placing of the arrangement in the picture space. We would like to see the whole thing moved upward just a little and a bit more space added to the left so that the tendril would not reach entirely across but fall just short of the left edge of the print. Each of these points may seem slight in itself, but they are really important to the success of the picture since in a still life our principal esthetic pleasure lies in the enjoyment of a superlatively fine composition.

Data: 2¼ x 3¼" Speed Graphic; 30 secs. at f:32, with Zeiss G-2 filter; Agfa Superpan Supreme; 11 x 14" print on Defender Velour Black DL.

Fifth Award

Amateur Class

J. C. Jenkins,
Shanghai. China

■ Mr. Jenkins has caught a most interesting and pathetic expression here with the two tear drops playing a most effective part. Slightly more depth of field would help, for the ear rather calls attention to itself by going pretty badly out of focus. More space all around the head except at the top would help in several respects. This would permit us to raise the head in the picture space so that the eyes would be above the center, almost always a desirable condition. It would also move the hand upward so that it would not appear crowded by the base of the print and more space on the right would help to reduce the prominence of the ear which calls attention to itself by reason of its nearness to the edge as well as for the reason given above.

Data: 8 x 10" bromide print.

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won points for their clubs in the Advanced Class: C. Stanton Loeber, for the California Camera Club; Fred Herrington, A.R.P.S., for the E.P.I.C. Pool; and William A. Garnett, for the Pasadena "Y" Camera Club.

The following won points for their clubs in the Amateur Class: D. Chiesa, for the California Camera Club; Isadore Berger, for the Detroit Camera Club; S. Peter Miller, for the Manhattan Camera Club; A. S. Mawhinney, A.R.P.S., for the Miniature Camera Club of New York; and J. C. Jenkins, for the Shanghai Camera Club.

The following prize winners have not indicated any club affiliation: Axel Bahnsen and Cedric Wright.

Contributing Clubs

Amherst Camera Club (Mass.)
Aremac Camera Club (San Francisco)
Bloomington Art Association (Illinois)
Bridgeport Camera Club (Connecticut)
California Camera Club (San Francisco)
Camera Club of Richmond (Virginia)
Caterpillar Camera Club (San Leandro)
Dallas Pictorialists (Texas)
Detroit Camera Club (Michigan)
Gray's Harbor Camera Club (Aberdeen, Washington)
Manhattan Camera Club (New York)
Modesto Camera Club (California)
Oklahoma Camera Club (Oklahoma)
Pasadena "Y" Camera Club (California)
Photographic Society of Hongkong (China)
Photographic Society of Philadelphia
Photographic Society of San Francisco
Pictorial Photographers of America
Queen City Pictorialists (Cincinnati, Ohio)
Shanghai Camera Club (Shanghai, China)
Signa Phi Nothing (Sacramento, California)
Snake River Camera Club (Payette, Idaho)
Telephone Camera Club of Manhattan

STANDING OF CLUBS

Large Clubs—Advanced Class

California Camera Club	11
Photographic Society of Philadelphia	5
Brooklyn Institute of Arts and Sciences	3
Manhattan Camera Club	3
Fotoklub Ljubljana	2
Fort Dearborn Camera Club	1

Small Clubs—Advanced Class

Pasadena "Y" Camera Club	54
The Pack Rats	19
E.P.I.C. Pool	9
Signa Phi Nothing	9
Aremac Camera Club	4
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2

Large Clubs—Amateur Class

Miniature Camera Club of New York	24
California Camera Club	23
Detroit Camera Club	18
Photographic Society of San Francisco	10
Amherst Camera Club	9
Manhattan Camera Club	5
Camera Club of Oakland	4
Camera Club of Richmond	2
Green Briar Camera Club	1
Shanghai Camera Club	1

Small Clubs—Amateur Class

Dallas Pictorialists	15
Camera Club of San Pedro	6
Modesto Camera Club	5
San Marino Camera Club	5
Marin Camera Club	2

SUMMARY OF COMPETITION RULES

1. Open to all, amateur or professional, club member or non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue.

Club Notes

Exhibitions

The 1940 Kodak exhibit will visit 17 leading western and southwestern cities beginning September and continuing through December of 1940. This brilliant show, which every photographer must mark on his calendar, will bring 200 outstanding salon prints in black and white and color; full-color motion pictures; lectures and demonstrations and a screen showing of gorgeous color transparencies selected from the world-famous Eastman Cavalcade of Color presented at the New York World's Fair. This is the first time these pictures have been presented to western audiences. Special sections will deal with darkroom technique, negative and print quality, choice of paper surfaces, etc. A list of the first showings is given below; subsequent showings will be listed in later issues of Camera Craft. Watch for the date in your city. Denver, Sept. 19, 20, 21, Albany Hotel; Seattle, Sept. 27, 28, 29, Olympic Hotel; Portland, Oct. 2, 3, 4, Multnomah Hotel; Sacramento, Oct. 9, 10, Senator Hotel; Oakland, Oct. 15, 16, 17, Leamington Hotel; San Francisco, Oct. 20, 21, 22, St. Francis Hotel; Los Angeles, Oct. 29, 30, 31, Nov. 1, Biltmore Hotel.

The two-reel color featurette. "The Ninth State," produced for the State of New Hampshire by Emerson Yorke Studio, has been booked by the U. S. Travel Bureau for screening in its exhibit at the Golden Gate Exposition. This exhibit is among the first to utilize 16-mm sound color prints reduced from the original 35-mm negative by the new Cinecolor process. Booking is for the duration of the Exposition.

San Francisco will have an opportunity to see two important exhibits during October at Loeber's, 70 Post Street. From October 2nd to 11th, 15 masterpieces by Leonard Misonne, one of the world's greatest pictorialists, will be displayed. Following the Misonne exhibit, 50 of Dr. Julian Smith's brilliant character studies will be displayed. The quality of these two shows is such that no photographer in this area can afford to miss seeing them.

Photographic Instructions

The California Camera Club School of Photography will begin classes in October. The classes will be directed by C. Stanton Loeber, assisted by Bob Vawter. First meeting of the advanced course will be held Oct. 7th, at 8:00 P.M. The Beginner's group will hold their initial meeting on Oct. 11th, at 8:00 P.M. All classes will be held at the club rooms, 45 Polk St., San Francisco. Tuition is $5.00 and this amount may be applied to the initiation fee for club membership.

The Los Angeles Camera Club. 2504 W. Seventh Street, Los Angeles, Calif., announce the opening of their Beginner's Class in photography. This class is designed for the absolute beginner. No previous knowledge of photography is required. The course is open to outsiders and further details may be obtained from the above address.

Classes in composition for photographers will again be conducted in the Bay Area by Mrs. Leola Dixon Devlin. These classes are conducted for amateur photographers who wish to study the pictorial aspects of their avocation. Instruction includes demonstrations, class discussions, and criticism of prints. Enrollment fee is $6.00 for 10 meetings. Registration fee $1.00, which is paid annually and permits enrollment in all other University of California Extension Division Courses. Classes in San Francisco open September 20th at 7:30 P.M., at 5:40 Powell Street; in Oakland, September 17th, 8:00 P.M., 1730 Franklin Street.

The popular courses in photography which have been given for the past 6 years under the auspices of the Tripod Club of the Central Branch, Y.M.C.A., 55 Hanson Place, Brooklyn, N. Y., will again be directed by J. Ghislain Lootens, F.R.P.S. A folder completely describing these classes is available and may be obtained from the above address. During the month of September an exhibition of photographs by former students will be on display at the Y.M.C.A.

The Women's Photographic Society of Cleveland. 402 Finance Building, Cleveland, Ohio, is now beginning a series of classes for both beginners and advanced workers. The classes will continue for a period of nine weeks.

The Photo League. 31 E. 21st Street, N. Y. C., has announced their fall courses in photography which will run for 15 weeks from October to February 1940-41. A circular describing these courses is available and may be obtained from the above address.

Fort Dearborn Camera Club will open its Camera School on October 8th. The term is to last for ten Tuesdays. Even though the enrollment will be large only one evening a week will be devoted to this purpose, so it's "first come, first served." Further information regarding these classes may be obtained from the Fort Dearborn Camera Club, 75 E. Wacker Drive, Chicago, Ill.

A series of lectures and demonstrations in photography are now being conducted under the auspices of the Triangle Camera Club of the Downtown Y.M.C.A., 715 So. Hope Street, Los Angeles, California, directed by Mr. Aldo Chiappero. Non members will be admitted at a charge of 35c per lecture. Classes began September 4th and continue every two weeks thereafter. Further details may be obtained from the above address.

Club Activities

A print comment night for disgruntled members was recently held by the Los Angeles Camera Club. On this night courageous members who had had their "pet" prints roughly handled in previous competitions were given an opportunity to present them and defend them personally. The rest of the members had the privilege of rebuttal.

Figure 1. "Bob Vawter" by Harry Butler.

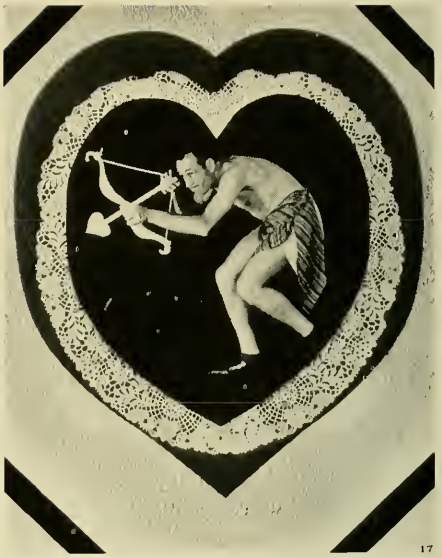


Figure 3. "Jack Cannon" by Carl Christianson.

Figure 2. "Carl Christianson" by Jack Cannon.

Komic Kontest—Kalifornia Kamera Klub

All work and no play may make "jack"—and good pictures: but a good deep belly laugh certainly is to be recommended at frequent regular intervals. So went the process of mental arrangements that prompted, sponsored and successfully presented Komic Kontest No. 1, the California Camera Club's Hilarity Competition.

The rules were simple: pairs of numbers were placed in a hat from which contestants drew, thereby establishing the partners who worked on a model-photographer and vice-versa arrangement. "Everything goes and no holds barred" was the slogan—results proving that the mood and spirit prevailed to the bitter end.

"Little Mother," Fig. 1, (Bob Vawter by Harry Butler) received popular choice award and won a slick gadget bag. Second award was captured by a gay ninety job done by Jack Cannon to Carl Christianson and third place went to a muscle-bound Cupid—Cannon by Christianson. Booby prize of the evening was awarded to the guinea pig of first prize print, Bob Vawter. The prize: a live guinea pig.

Announcements

The Sixth Annual Convention of the Photographic Society of America will open in Cleveland, Ohio, on Friday, October 25th. Headquarters will be at the Hotel Carter, one of the finest in Cleveland. Costs will be held at a minimum; rooms with shower and bath, $2.75 and up. The convention will take place from October 25th to 27th, inclusive. Feature of the convention will be the P.S.A. International Salon which will be displayed at the Cleveland Museum of Art. A splendid program has been arranged which includes the following demonstrations and lectures: Mrs. Helene Sanders, "demonstration on portrait photography;" Mr. Keith Henney, "practical color photography;" Mr. R. E. Worstell, "fluorescent lighting;" and Mr. Adolf Fassbender, "control in composition." These are only a few of the many important lectures and demonstrations which will be presented by famous photographic authorities during the three day meeting.

Notes and Comments

New Products

Defender Varigam, a new enlarging paper that provides complete contrast control in one sheet of paper, has just been announced by the Defender Photo Supply Co., Inc., of Rochester, N. Y.

With Defender Varigam, a single grade of paper, it is easily possible through proper manipulation, to obtain an infinite number of contrasts from a given negative or, conversely, to obtain prints of uniform quality from negatives differing widely in their contrast and density characteristics. This change of contrast is effected by varying the color of the printing light and the possible gradations are limitless within the recognized range of the photographic papers.

While most photographic papers are sensitive to blue light only, Defender Varigam is sensitive not only to blue but also to green and it has the most unusual characteristic of very soft gradation in the green sensitive region and very high contrast in the blue sensitive region.

Therefore, it follows that if an exposure is made by blue light (through a blue filter) maximum contrast can be obtained (equal to that of Defender Velour Black Contrast 4). A green filter passing green light only has been found to be lacking in light transmission, hence with Varigam, a yellow filter which passes the green light as well as the red is used. Exposure with this filter produces a print of soft gradation (even softer than obtainable with Velour Black Soft 1).

To produce a satisfactory print, exposures are made with these two filters, so balancing the timing with each that the opposite effects of softness and hardness are blended to any degree of contrast deemed desirable. Using a Mazda light source, total exposure time with the same negative is constant regardless of what degree of contrast is required.

Each one-dozen sheet package of Defender Varigam includes a set of two-inch square blue and yellow cellulose acetate filters as well as a cardboard filter holder. These filters are entirely practicable and will produce very good results, but are not guaranteed. For precision workers, it is recommended that gelatine or glass filters be used.

Exposure with the blue filter alone produces extreme contrast and with the yellow filter alone, maximum softness is obtained. Proportionate exposures made successively with both the blue and yellow filters, give an infinite number of gradations between extreme contrast and extra soft. Or a set of filters having varying blue-yellow transmission ratios may be used to produce definite degrees of contrast as desired.

A simple proportioning scale calibrated to Mazda light which eliminates calculation is available through Defender dealers. To increase or decrease the total exposure, the correct proportional exposure is easily determined by consulting the scale.

The only deviation from the use of conventional papers in the handling of Varigam is in the exposure. Printing technique with the new paper, as recommended by Defender, is extremely simple.

1. Estimate exposure by visual inspection of the negative.
2. Decide what contrast is indicated and divide the estimated exposure time into comparable blue and yellow proportions.
3. With the blue filter in front of the lens, expose for the predetermined time.
4. Remove the blue filter and continue similarly with the yellow filter.

Processing from this point on is entirely normal, developing, fixing and washing being carried out the same as with conventional paper. By printing in and extensive dodging with the different filter combinations it is readily apparent that any number of unusual effects can be easily obtained. The filter holder which is standard equipment with most enlarging units can be easily adapted to handle Varigam filters.

Defender Varigam should be handled under a **red** safelight (not orange) such as in general use. Defender is marketing through regular dealers a special molded Lucite plastic red safelight screen suitable for Varigam which is unbreakable and color fast in normal use.

Varigam is available in four popular Defender surfaces as follows:

R—Blue White Glossy, S. W.

BT—White Semi-Gloss, D. W.

EL—Velvet Grain Buff Luster, D. W.

DL—Velvet Grain Natural White Luster, D. W.

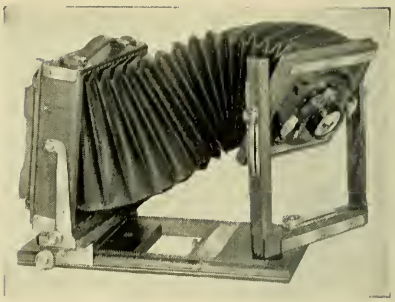
Varigam reacts to all toning processes and an excellent sepia is possible by redevelopment, however, the hypo-alum process for sepia is not recommended. Varigam may also be used for making contact prints through the use of reduced lighting and with suitable equipment.

The new Speed-Ez-El Projection Easel, introduced by the A. J. Ganz Co., offers great speed and ease of operation. These easels are made to fit standard sizes of enlarging paper which are inserted from the end. No adjustments are necessary and no trimming as the easel provides an even uniform border. Its raised base makes it easy to focus as all parts of the negative are out of focus except the part desired in the print. Available in five sizes, ranging in price from 60 cents for the $2\frac{1}{2}$x$3\frac{1}{2}$" size to $1.50 for the 8x10" size. See your dealer or write A. J. Ganz Co., Dept. K-10, 112 No. Hayworth, Hollywood, Calif.

Kodatron Speedlamp

The New Kodatron Speedlamp for ultra-speed photography that incorporates an improved circuit, new safety and convenient features is now ready for distribution by the Eastman Kodak Company, through a licensing arrangement with Dr. Harold E. Edgerton and associates. Utilizing a gas-filled, electrically-operated flash tube, it provides an extremely high volume of light, comfortable to the eye and well balanced for photographic purposes, at an effective flash speed of about 1/30,000th second. The tube will yield more than 5,000 flashes. For further details write the Eastman Kodak Company, Rochester, N. Y.

The new Hampden Panchromatic Make-up Kit, introduced by the Hampden Company, was especially created for black-and-white photography with the idea of reducing retouching costs and producing more flattering photographs by improving skin textures. It contains 5 panchromatic shades of complexion foundation, varying in color from peach to chocolate, plus 3 shades of powder, panchromatic lip-rouge, eye brow pencil, eye shadow, lip brush and powder puff. The five foundation shades instead of being supplied in tube or jar, come in handy little wedge-shaped sticks, which make application simple. Included in the kit is an illustrated booklet that will aid the photographer in his work. Price of the kit is only $1.50. Refills are 15c each. See your local dealer or write the Raygram Corp., 425 Fourth Avenue, N. Y. C.



Watson Portrait and View Camera

The Watson 5x7 Portrait and View Camera completely modernized and adjustable with reducing backs from sizes of 2¼x3¼ to 5x7, offers home portrait fans and studio operators a remarkable value for only $29.50, without lens, announces Burke & James, Inc., 223 W. Madison St., Chicago, Ill. New features of the Watson include tilting and swinging lens board, and front vertical and horizontal swing back, rising front board and sliding front, and all-metal slide. For further information on this camera or the Watson Commercial View Camera with 24" bellows, write the above address.

A new type Finopan has been announced by Agfa Ansco of Binghamton, N. Y. The new Finopan has a measurably finer grain structure and its gradation is slightly softer, a feature that is particularly suitable for enlarging purposes. Although no change will be made in the speed ratings shown for Finopan, it has been found possible to incorporate a somewhat greater reserve speed in the production of this new emulsion type. Developing time is 30% longer than that used for the old type Finopan. Recommended developing time for the new type Finopan in Agfa 17 is 9 to 12 minutes at 65 degrees F. Cartons of the new emulsion can be identified by the words "New Improved Type."

The new F-R Cine Action Editor for 16 mm. movie film will soon be ready for distribution announces the Fink-Roselieve Co., Inc. This machine is patterned after those now used in nearly every motion picture cutting room. The movie maker simply places the Action Editor between the film rewinds and views for editing while cranking. You can wind and rewind at will, and the film can be stopped for inspection of stills. Film is viewed through a high quality magnifier and shows a brilliant image in action 4 times the original size. The action revealed is smooth, continuous, and free from all vibration. There is no film slap, no complicated film threading and no danger of snapping and breaking the film. The F-R Cine Action Editor is priced at only $7.95. See it at your dealers.

The new Graflex Anniversary Enlarger just introduced by the Folmer Graflex Corp., is a new condenser enlarger taking negatives up to 2¼x3¼" and offering such features as a new type of scratchless-glass-or-

glassless negative carrier, extra-large baseboards, triple-cooled lamphouse, tripod column, counterbalanced non-chattering magnification control and "variography." Variography, according to Graflex, is the altering of linear perspective. In the new Graflex Enlarger it is achieved by a two-way tilt of the negative, a tilting lamphouse, and an accessory universal-tilting easel holder. Price of the Graflex Anniversary Enlarger without lens is $87.50.

The Zeiss Ikon Color Adapter makes possible the use of Kodachrome and Black and White films of the Kodak Bantam size (No. 828 spools) in the Super Ikonta B and BX cameras. It permits taking nine exposures of 24 x 36 mm. size from one roll of film. This color adapter will be especially welcomed by all owners of the Super B and BX cameras who are anxious to take color shots. The adapter is ideally suited for making Kodachrome transparencies, 24 x 36 mm., at very little cost, either on Kodachrome film K-828 or on Kodachrome film K828-A , for color pictures in artificial light. And, another advantage: By adding the color adapter to your Super B or BX camera, you always have the choice between two picture sizes (2¼x2¼" or 1x1½").

By means of this adapter, loading is very simple, and no alteration is required of the camera. All the important and well-known features of the Super B and BX, such as film counter, automatic locking device, body release and coupled view and range finder, can be used to full advantage, and the photo-electric exposure meter of the Super BX will become particularly valuable for color photography.

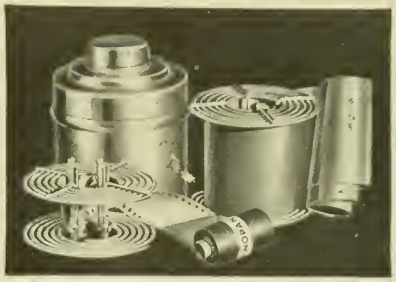
The unit consists of a view finder mask for the 24 x 36 mm. (1x1½") field of view, a corresponding picture mask fitted into the open back of the camera, and two spool adapters accommodating the smaller size #828 spools to the Super Ikonta B and Super Ikonta BX cameras. It is supplied complete in an attractive, compact leather case, small enough to slip into your pocket.

A new addition to the line of NIKOR developing tanks, one which has an improved reel easily adjusted to handle the followiing roll film sizes: Kodak Bantam, 127, 120, 116 and 35 mm. in rolls up to 24 exposures, has just been announced by Burleigh Brooks, Inc. This new reel, which fits all NIKOR tanks except the Model 35, also is sold separately.

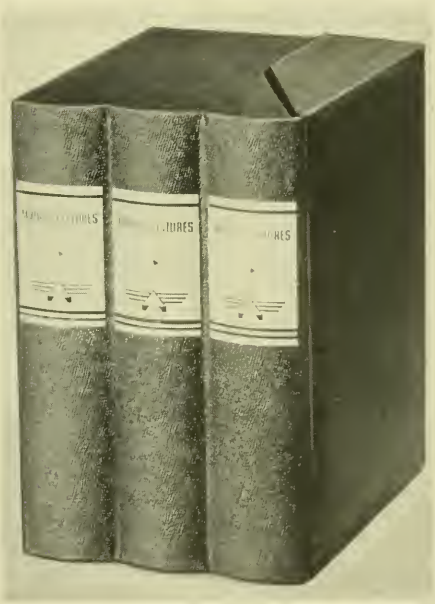
As with all other NIKOR tanks, both the tank and reel in this new model are made of solid, life-time stainless steel, of a special type which has long proved its ability to resist staining or corrosion and prevent film fogging. And it will not chip or break in handling even when accidentally dropped.

In addition to its high strength and stainless qualities, this new reel is of open core construction, providing free circulation for even, thorough development. Adjustment to various size roll films is made by quickly loosening four thumb screws, sliding the end pieces to the desired position, and locking. It locks accurately and rigidly, so there is no danger of the reel coming out of adjustment if squeezed or dropped.

A new snap-action center clip greatly simplifies loading. The clip is snapped to the open position, the film inserted, the clip snapped shut and the film quickly and easily wound in place. The tank uses 8 to 16 ounces of developing solution, depending on size of film. The new NIKOR tank retails at $6.50. The new reel retails at $3.60.

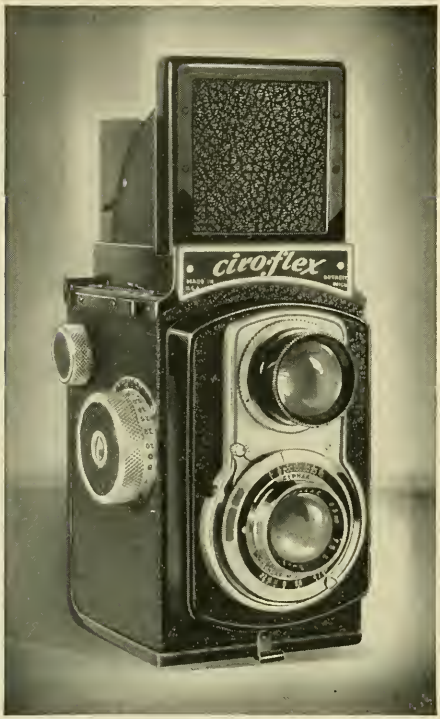


Nikor Tanks



Amfile for Movies

Amfiles introduced by the Amberg File and Index Company of Kanakee, Ill., offer both still and movie phootgraphers simple filing methods for negatives and prints. Amfiles are made in the form of box files the size of books, and bound in a manner to resemble books. They present a neat and attractive appearance when placed upright in a book case or between book ends. The Amfile for movie reels resembles three books and is priced at $1.50. Other Amfiles sell for $1.00. The miniature negative Amfile accommodates 20 full rolls of 35 mm. negatives. For mounting prints, there is a Amfile loose-leaf album which lays flat when open, and when closed is the size of an average book. Write the above address for further details.



Ciro-Flex

The new Ciro-Flex All-metal Reflex Camera has been introduced by Ciro, Inc., Detroit, Mich. This new twin lens, all-American reflex takes 2¼x2¼" pictures on Eastman 120 or Agfa B2 roll film. It is equipped with a F:3.5 Wollensak Velostigmat taking lens and F:3.2 Anastigmat viewing lens. It has a Wollensak "Alphax" shutter, with speeds from 1/10th to 1/200th of a second. The new Ciro-Flex is priced at $42.50. Ever-ready carrying case $6.00 extra. See this new camera at your local dealer's.

The "Montage," a new device that simplifies the making of photo-montages, has been introduced by the Alfen Specialty Company Inc., 307 5th Avenue, New York City. Through a series of twelve differently-shaped sections, you can get a full 8x10 montage of any combination of negatives you desire. Removing one section at a time, it is only necessary to select a negative, focus and expose and replace that section before proceeding to the next. The "Montage" is made of sturdy, long-lasting cardboard and sells for $2.00 complete.

The new FocuSpot Rangefinder designed for use with all models of Speed Graphics has been introduced by the Western Photo Distributors, 1010½ So. Olive Street, Los Angeles, Calif. It makes possible critical focusing under adverse light conditions where the ordinary range finder is difficult or impossible to use. A light touch upon a switch projects a lighted "S" to the center of the subject. Critical focus being ascertained when this projected "S" has been brought to hairline sharpness. The focal spot is synchronized with the focus of the lens itself. Price for all models is $17.50. A descriptive circular is available from your dealer or the above address.

Announcements

Foto-foam, distributed by the Wholesale Photographic Supply Co., 133 E. 58th St., New York City, is a preparation that eliminates streaking, water spotting and other uneven chemical action on plates and films. According to Anton Bruehl, who developed this product, it not only dries films and plates quickly, free from water spots, but also is valuable in cleaning tanks and trays and in retouching, reduction, intensification and toning. A folder describing the use of Foto-foam is available from the above address.

Sherman E. Surdam, commercial and portrait photographer of the General Electric Company, was awarded the degree of Master of Photography, by the Board and Council of the Photographers' Association of America. The degree is the highest recognition obtainable by photographers in the United States.

Hillary G. Bailey, F.R.P.S., of Indianapolis was awarded an Honorary Master of Photography by the Professional Photographers Association of America at its annual convention banquet in Chicago on August 22. This is said to be the highest photographic honor which the association confers.

The Peerless VapOrate Film Treatment protects films from surface damage and deterioration due to age and wear. When film is VapOrated, chemicals replace the natural moisture of the gelatin and also form a hard resistant surface. Thus, the film when processed has a mar-proof surface with a soft core, which keeps the film pliant regardless of its age. With movie films, a third lubricating treatment is used to take care of the additional strain and wear these films receive during projection. Costly installations of equipment have been established throughout the country so that your films may be VapOrated conveniently and economically. Ask your local dealer about this service. A descriptive circular is available from the VapOrate Co., 130 W. 46th St., New York City.

Booklets and Catalogs

Now available to camera fans, both beginners and advanced amateurs, is Henry Herbert's new bulletin of camera accessories and darkroom bargains. The values contained in this catalog represent a collection of one's and two's of a kind, some new, some used, but all notable for their universal appeal and low price. Groups are broken down into five classifications: (1) Camera Accessories. (2) Darkroom Accessories. (3) Filter and Lens Attachments. (4) Camera Cases. (5) Miscellaneous. The prices range from 15c to $15.00, regardless of original list price. Camera fans will find it worthwhile to write for this unique bulletin, since it contains a sufficient variety of items to interest each and every one of them. Address your inquiry to Henry Herbert, 483-485 Fifth Avenue, New York City.

A Mid-summer Bargain Bulletin is now available without charge from the Central Camera Company, 230 So. Wabash Avenue, Chicago, Ill. It contains hundreds of bargains in all kinds of cameras and accessories.

The Fotoshop Fall Bulletin of special values is now available, announces the Fotoshop, Inc., 18 E. 42nd St., New York City. It features hundreds of money saving values in all kinds of photographic equipment. Bearing in mind that at this time of year most photo fans are laden with negatives representing their summer's photographic activities, the fall bulletin features specials in darkroom equipment. Copies are available without charge from the above address.

"The Story of Micrograin '85'" is the title of a new folder just released by the Mansfield Photo Research Laboratory, 701 So. LaSalle St., Chicago, Ill. This new folder will interest all those interested in fine grain developing. It contains many hints on developing, the latest emulsion speed ratings and other useful data. Write the above address for your free copy.

We have mentioned the G-E Photo Data Book in a previous notice. However, the general excellence of this handy pocket sized book prompts us to remind you that it is available for 50 cents or is given free to purchasers of the new G-E Exposure Meter. See your dealer or write the General Electric Company, Schenectady, N. Y.

Our Book Shelves

Natural Color Processes, Third Edition, by Carlton E. Dunn. Published by the American Photographic Pub. Co., of Boston, Mass. 232 pages, 5¼ x 7¾ inches, cloth binding, $2.00.

Completely revised and enlarged, this Third Edition covers all color processes in use today. It is a thoroughly complete working textbook that can be kept in the darkroom for constant reference. The beginner in color photography will find this an ideal text and the advanced worker will find many helpful hints and new methods that will aid him in his work.

A Pageant of Photography, Edited by Ansel Adams. Published by Crocker-Union, of San Francisco, Calif. 48 pages, 11½ x 14½ inches, profusely illustrated, paper binding 50c, Deluxe binding $1.00.

This book was designed to perpetuate and broadcast the 1940 photographic show in the Palace of Fine Arts on Treasure Island. It presents an excellent cross-section of this exhibit with reproductions of the work of Hill, Brady, O'Sullivan, Jackson and other famous pioneers; and of the work of such modern masters as Weston, Stackpole, Bourke-White, Sheeler, Lange, and Adams; as well as articles by Beaumont Newhall, Edward Weston, L. Moholy-Nagy, Dorothea Lange, N. U. Mayall, Dr. Grace McCann Morley, Paul Outerbridge, and others.

This is a most unusual value and one that every serious photographer should take advantage of at once. Reproductions are excellent and the book is beautifully printed.

Modern Photography 1940-41, Edited by C. G. Holme. Published by Studio Publications, Inc., of New York and London. 124 pages, 7¼ x 9¾ inches, more than 150 illustrations in black and white and color. Cloth binding $3.50, paper binding $2.50.

The tenth annual issue of this volume often referred to as "The International Annual of Photographic Art," offers almost twice as many pictures as any previous number. There are more than 150 illustrations, with 8 pages in full color. The photographs were selected from the work of photographers throughout the world and they cover every type of subject matter. Mr. Alexander King, Associate Editor of Life Magazine, contributes an introduction in which he analyzes current day photography in the light of the flood of photographs which pass across his desk.

Making Your Photographs Effective, by J. A. Lucas and Beverly Dudley. Published by Whittlesey House, of New York City. 385 pages, 6 x 9 inches, 190 illustrations, cloth binding, $5.00.

Here is a practical working manual for the amateur or professional photographer. It covers the subject completely beginning with the selection of the camera and equipment and continues through developing, printing and enlarging, to copying and lantern slide work. Every practical phase of photography is considered but most important are the methods with which the authors have made their working instructions and information crystal clear. Using illustrations profusely and with simplifying tables, ordinarily complicated explanations are reduced to a minimum.

Particularly excellent is the chapter on lighting in which the great control that is possible when lights are manipulated by skilled hands is vividly brought out by means of diagrams and accompanying photographs.

Helpful hints and suggestions that are of value to both professional and amateur abound in this book and the practical attitude of the authors make it an unusually fine working handbook.

The Camera Gadgeteer, by Hermon Gabriel. Published by the Fomo Publishing Co., of Canton, Ohio. 64 pages, 6 x 8 inches, illustrated, paper binding, 75c.

A book for the camerafan who likes to do it himself. It contains hundreds of formulas, shortcuts, and plans for constructing darkroom gadgets of all kinds. Directions are very simple and are illustrated with pen and ink drawings. It was written by the author of that popular handbook, "Composition Simplified."

Illustrated Guide to Yosemite Valley, by Virginia and Ansel Adams. Published by Crocker-Union, of San Francisco, Calif. 130 pages, 5½ x 8 inches, many illustrations, plastic binding, $1.00.

If you are contemplating a trip to Yosemite Valley, this book will prove invaluable. It gives details on the various means of reaching the Valley; on all its roads and trails; information on activities such as fishing, riding, etc., details on the fauna and flora of the Valley; and many other interest-

ing and valuable facts. Throughout there are many carefully selected illustrations by Ansel Adams which serve as an admirable photographic guide for the camera enthusiast. The pictures have been placed as nearly as possible to correspond with the road or trail described. Diagrammatic maps in three colors outline the trails and mark points of interest and where they may best be viewed. Be sure to buy your copy and study it carefully before your next trip to Yosemite.

Infra-Red Photography with Kodak Materials, Kodak Data Books. Published by the Eastman Kodak Co., of Rochester, N. Y. 34 pages, 5¾ x 8½ inches, illustrated, paper binding. 25c.

Both theoretical and practical aspects of infra-red work are discussed in the new, copiously illustrated booklet, which is complete with specification tables for Kodak Infra-Red Film, Eastman Infra-Red Sheet Film, Eastman Infra-Red Sensitive Plates, and Eastman Infra-Red Process Plates. The nature of infra-red radiation, and its place in the spectrum, are treated. Applications in pictorial photography, long-range work requiring haze penetration, photography in darkness, criminology, discovering forgeries and restoring obliterated passages in censored books, copying, and other fields are described.

Data are given on lenses and filters suitable for infra-red photography, hypersentitizing techniques, exposure for landscape pictures, and shots by artificial light. The specification tables include characteristic curves and full processing data, and a lengthy bibliography is supplied.

Aerial Photos, How to Make and Sell Them, by Cland J. Dry. Published by the Aircraft Directory, of Athens, Ohio. 68 pages, 6 x 9 inches, illustrated, paper binding. $1.00.

A book for the free-lance aerial photographer, written by a man who has been successful in this field. It gives a simple explanation of aerial photography and an outline of the various markets for this type of photograph. Details are also given for the construction of aerial cameras.

Against-The-Light Photography, by R. H. Goodsall, A.R.P.S. Published by the Fountain Press, of London, England. 64 pages, 4¾ x 7¼ inches, illustrated, paper binding. 75c.

No. 14 in the New Photographer Handbook Series, deals with that type of photography that is best exemplified today by the work of Central European photographers. There is no denying the pictorial effectiveness of this type of lighting and the simple explanation given in this book will aid the photographer in mastering the technique.

Action Photography, by G. Denes, A.R.P.S. Published by the Fountain Press, of London, England. 56 pages, 4¾ x 7¼ inches, illustrated, paper binding. 75c.

No. 15 of the New Photographer Series. As the author states any real action photograph must be more than a snapshot of something in motion . . . it must have a feeling of "aliveness." In his book Mr. Denes explains the methods and technique by which this feeling may be conveyed to a great variety of action pictures.

Clouds Make the Picture, by G. Denes, A.R.P.S. Published by the Fountain Press, of London, England. 48 pages, 4¾ x 7¼ inches, illustrated, paper binding. 75c.

No. 16 of the New Photographer Series. The author first discusses why and when clouds are effective in pictures of various kinds; then he considers exposure and the use of filters; next the various types of clouds and how to photograph them; and finally the technique of printing in clouds. A very excellent little book with explanations that are clear and concise.

Photo Markets, Ninth Edition, by John P. Lyons. Published by Photo Markets, of Hanover, Pa. 136 pages, 6½ x 9 inches, paper binding. 50c.

This new edition is the ninth issue of this the most popular of market guides. It contains 2000 markets that have been carefully checked and brought up-to-date. There are 194 new markets never reported before and 396 changes. In addition, helpful hints are given on what and where to shoot and how to submit photographs. Copyright information is also included. It is a big value at this low price.

Elementary Photography, by Gilford G. Quarles. Published by the McGraw-Hill Book Co., Inc., of New York City. 350 pages, 6 x 9 inches, 82 illustrations, cloth binding. $3.00.

A complete text book designed to fill the space between the very elementary and the advanced, technical work. Though the author assumes that his reader has no previous knowledge of the subject, he does not skip briefly and lightly through but discusses carefully those fundamentals that will give the reader a good working knowledge of photography. Furthermore, he does not follow the normal order of the photographic process but rather what he feels is the normal order of learning. This is an excellent text for a beginner's class in photography.

The Little Technical Library. Published by the Ziff-Davis Publishing Co., of Chicago, Ill. About 120 pages, 4¾ x 6½ inches, illustrated, cloth binding. 50c each.

The twenty books in this series, each written by an expert in his field, are well illustrated and present their subject matter in a clear, simple manner that makes them easy to read and understand. Titles and authors follow.

Your Camera and How It Works, by W. E. Dobbs and Charles A. Savage; **Developing, Printing and Enlarging,** by Al and DeVera Bernsohn; **Filters and Their Uses,** by W. Bradford Shank; **Composition for the Amateur,** by Kenneth Heilbron; **Movie Making for the Beginner,** by Herbert C. McKay; **Color in Photography,** by Ivan Dmitri; **Child Photography,** by Harold Lambert; **Home Portraiture and Makeup,** by Maurice Seymour and Syd Symons; **Tricks for Camera Owners; A Glossary for Photography,** compiled by Frank Fenner, Jr.; **Outdoor Photography,** by Samuel Grierson; **Indoor Photography,** by Hillary G. Bailey; **Flash Photography,** by Rus Arnold; **Photographing Action,** by Victor De Palma; **Manual of Enlarging,** by Stephen White; **Miniature Camera Technique,** by Fenwick G. Small; **Photographic Lenses and Shutters,** by Richard W. St. Clair; **Photo Tricks and Effects,** by Jacob Deschin; **Selling Your Pictures,** by Kurt S. Safranski; **Darkroom Handbook and Formulary.**

Measure Gamma Yourself

Paul Louis Hexter*

WE ALL like to play. It is a habit formed early in childhood and carried over through our entire lives. When we experiment with developers it is definitely a form of play and in a world full of uncertainties and unhappiness it is good for our psychoses. There is no quarrel with developer brewing as long as we recognize it as fun. The trouble begins when amateur scientists take this playing around seriously.

Every once in a while the photographic press carries an article by some developer addict who has taken himself so seriously he really believes he has found something the photographic laboratories have overlooked. Now I do not go so far as to say it is impossible for an untrained individual to discover a new technique in development but I do say it is highly improbable. The rugged individualist doing scientific photographic work in this highly specialized age needs a fully equipped laboratory and quite an education if he is to be in a position to make an original contribution to the technical end of photography. If he has the equipment both mental and physical then he can hardly be classified as untrained.

In a recent article, some developer addict got all excited about developing in DK-20 for one half the specified time, finishing up development by placing the film in a 10% solution of sodium sulphite. He raved about the results and tested the same procedure with several other chemicals in the after-bath. Finally he decided that sodium sulphite was best for the second bath, only on what basis he judged his results, he failed to state.

A few months after this was published, one of the large laboratories took it seriously and ran controlled sensitometric tests to see if there was anything to the idea. The upshot was that all this particular addict was doing was not developing his films as far as he formerly did. Decreasing the developing time of DK-20 by 30% gave the same identical effect.

The point that many amateur laboratory photographers fail to grasp is that the negative is the product of many factors besides development

* Author of "Make Your Pictures Sing!" Camera Craft Publishing Company, $3.00.

alone. They still believe that development is the key to excellence in photography and that a minute more one way or the other might create a masterpiece. As a developer can only be evaluated when there is some control of the various other factors, an easy way of determining gamma would be of great help to many photographers.

In the article, "Gamma, Exposure and Development," March, 1940 Camera Craft, it is shown that Panatomic X developed to a gamma of .9 required 5 minutes in DK-60A, 6¼ minutes in DK-50, 18 minutes in DK-76. and 25 minutes in DK-20. Now for most practical purposes a gamma of .9 with one of these developers is just as good as a gamma of .9 with another. The reason for preferring one developer over another is not that one gives salon prints and the others do not, but that for the particular manner in which you work one is better fitted to your needs than the others.

My personal preference is for D-1 Pyro and I use it on almost all my work, not because it gives me salon prints, but because:

(1) D-1 Pyro is made from 3 stock solutions diluted with water. The solution is used once and thrown away. This means a developer of constant and known strength each time it is used.

(2) As I develop weekly rather than daily, tank developers used over again and kept up with replenishers tend to go temperamental on me toward the end of their useful life. D-1 Pyro made up fresh has not been subjected to oxidation as have tank developers weeks old.

(3) D-1 Pyro is inexpensive and very easy to make up.

(4) As I work 3¼ x 4¼ on most things, grain never bothers me. If it did I would worry far more about the film stock than about the development. There is no point in using a fine grain developer if you do not have to.

(5) D-1 Pyro stains the negative and gives about 10% greater printing contrast. I also think it gives better tone separation in the delicate halftones because of this. I like this extra contrast.

(6) Subjects of great contrast are developed in cut-back Pyro without having to make up special developers. It is only a matter of dilution.

That's my story on Pyro and why I use it. No developer has as many advantages and fewer disadvantages for my own particular way of working. To me its greatest virtue is that the developer always has the same strength because it is made up each time it is used.

I have cooked up my share of developers in the past ten years and I hope to cook up more in years to come. It is good fun and I like it, but I think the chances of my improving on Pyro for my particular type and quantity of work are extremely slim. When a new developer comes on the market, I will try it, but only because it's fun. As I look around my dark room, I still have a few chemicals on my shelf like Neol, Adurol and even Eikonogen. I don't even have the formulas for them any more but I had fun trying them out.

You will never take developer cooking too seriously if, with reasonable accuracy and not too much trouble, you can tell when you are comparing negatives developed to similar gammas. A densitometer sounds like a costly bit of apparatus and the thought of actually measuring gamma in your own darkroom without any expensive instrument and without a lot

Figure 1. This is all you need to measure gamma.

Figure 2. The paper mask in place over the contact printer. A photoflood bulb is in the printer.

of preparation sounds highly improbable. Well, it isn't—and what is more it will take less time to calculate the gamma obtained with a given film, developer and developing time than it takes to read this article. As far as the mechanics are concerned, again there is nothing complicated. The apparatus that you require, you probably already have. See Figure 1. You need:

(1) A contact printer.
(2) A photo electric cell exposure meter.
(3) #2 photoflood bulb.
(4) A piece of black paper for a mask.
(Weston Meters #650 or #715, or Photrix A or B are very simple to use. Other meters can be adapted with a little ingenuity.)

You can see that the apparatus required is not expensive. Take a piece of black paper larger than the glass of your contact printer, cut a hole $\frac{3}{16}''$ in diameter in it and fasten this down on the contact printer with masking tape. Figure 2. Remove the regular bulbs from your contact printer and replace them with the photoflood #2. Now you have a light source giving a strong beam of light, $\frac{3}{16}''$ in diameter, through the hole in the paper mask. A photoflood lamp in a contact printer is a fairly warm proposition so do not keep the photoflood on any more than you have to. It is an advantage to have a snap switch handy so that you can turn this photoflood on and off quickly.

Now let us take a glance for a moment at some photographic terms. Transparency is referred to as the fraction of light which is allowed to pass through a negative by the silver deposit. A deposit which lets only half the light through is said to have a transparency of $\frac{1}{2}$.

Opacity is the light stopping power of a deposit and is the inverse of transparency. A deposit which has a transparency of $\frac{1}{2}$ has an opacity of 2.

If R_1 is the light falling on a deposit and R_2 the light that passes through it, the transparency will be $\frac{R_2}{R_1}$ and the opacity will be $\frac{R_1}{R_2}$.

If this is not clear so far, reread these paragraphs.

By definition, density is the logarithm of opacity. A deposit which lets through only half the light has a transparency of ½, an opacity of 2, and a density of .301. (The $\log_{10}$ of 2 is .301.)

Now if we translate this apparently complicated bit of mathematical reasoning into terms of a contact printer, photoflood bulb, and Weston Meter, we have a means of getting the numerical reading of the density of a negative deposit.

R_1 was defined above as the light falling on a deposit. Put the photoflood bulb in the contact printer and place the black paper mask over the glass. Measure the amount of light coming through the $\frac{3}{16}''$ hole in the paper mask with an exposure meter, by placing the meter over the hole as in Figure 3. On a Weston 650 or 715 this will give a reading in the neighborhood of 100 with a new photoflood bulb and the bulb close to the mask. As photofloods grow old they darken and do not give as much light. This is not too important although it is preferable to work with a new bulb because of greater accuracy. A Photrix Meter, Model A, will give a reading around 15.

R_2 was defined above as the light which passes through a deposit. Translating in terms of our apparatus means placing the negative deposit that is to be measured over the $\frac{3}{16}''$ hole in the paper mask and taking another reading. With the Weston 715 and Photrix, Model A, the scale can be changed for smaller amounts of illumination and this gives greater accuracy.

Only every third block on the Weston Meter is numbered. If the pointer falls between numbered blocks, this number must be calculated. Divide the difference between numbered blocks by 3 and add 1/3 for each block. Thus if the pointer is opposite the first block above 50, divide the difference between 50 and 100, the next numbered block, by 3, giving 16. Now add 16 to 50. Thus the first block over 50 is 66. With Photrix Meter, Model A, this calculation is not neeessary.

Suppose for example R_1 read 100 on a Weston Meter and after the negative was in place R_2 was 25, then $\frac{R_2}{R_1}$, transparency, is 25/100 or ¼, and $\frac{R_1}{R_2}$, opacity, is 100/25 or 4.

By definition, density is the logarithm of opacity, so the density is $\log_{10}$ of 4 or .602.

In case you do not know how to use logarithms, buy a book of logarithmic tables and have a friend show you how to use them. They are not complicated and fifteen minutes instruction will be sufficient for all you need to know. You can also get logarithms from a slide rule and if someone will spend a half hour with you on that you can get it.

In case neither of these methods of getting the logarithms appeals to you, here is a conversion table which gives the logarithms of most of the numbers you will probably encounter. Even if you are not enough of a

Figure 3. The Weston Meter over the hole in the mask measuring the total amount of light which would impinge on the negative.

Figure 4. A box built for measuring gamma because the photoflood in a contact printer gets too warm for continued use. Here the Weston meter is in place over the negative and is measuring the light that is transmitted.

mathematician to find your own logarithms, you can give a good guess at what they would be from interpolating this table.

Conversion Table

Transparency	*Opacity*	*Density*	*Transparency*	*Opacity*	*Density*
.001	1000	3.	.166	6	.778
.0012	800	2.903	.20	5	.698
.0025	400	2.602	.25	4	.602
.0033	300	2.477	.33	3	.477
.005	200	2.301	.40	2.5	.397
.01	100	2.000	.5	2	.301
.011	90	1.954	.52	1.9	.278
.0125	80	1.903	.55	1.8	.255
.0142	70	1.845	.59	1.7	.230
.0166	60	1.778	.62	1.6	.204
.02	50	1.698	.66	1.5	.176
.025	40	1.602	.68	1.47	.167
.0333	30	1.477	.70	1.44	.158
.0400	25	1.397	.71	1.4	.146
.05	20	1.301	.74	1.35	.130
.066	15	1.176	.77	1.3	.113
.1	10	1.0	.80	1.25	.096
.11	9	.954	.83	1.2	.079
.125	8	.903	.90	1.1	.041
.142	7	.845			

If you get an opacity reading of 1.65, half way between 1.6 and 1.7, referring to the conversion table, place the logarithm half way between .204 and .230 or .217. This is arrived at by dividing the difference between the numbers by two and adding the result to the lowest number.

This gives a quick and reasonably accurate method of reading the density of a negative deposit without going to the expense of buying a densitometer. Many color workers balance their negatives with no more apparatus than this. If much of this sort of work is going to be done it would be well to construct an asbestos lined box for the photoflood bulb, with a $\frac{3}{16}''$ hole in the top of it. The contact printer will grow quite warm if the photoflood bulb is left on for any period of time, as you will find out. Such a box is shown in Fig. 4. The sides are left open and a $\frac{3}{16}''$ hole is drilled in the top area over the center of the photoflood. Here a negative is in place and the meter is reading the light coming through the negative deposit.

Now that you have a method of reading the density of a negative deposit, you also have at your finger tips the means by which you can determine the gamma to which you have carried development.

When a negative is developed to a gamma of 1. (unity) the tones of the subject and the tones of the negative are in identical relationship. If a tone is twice as bright as another in the subject, then, providing the development has been carried to a gamma of 1., the negative will register it as having twice the opacity.

Translating this complicated sounding paragraph into terms of a contact printer, photoflood bulb and Weston Meter, make two exposures of the same subject, one with twice the exposure of the other.

For the purpose of determining gamma we require the densities of two negative areas, one having received twice the exposure of the other. Whether this is on the same film exposed to a calibrated step wedge or whether it is on another identical negative of the same subject that received 2x exposure and the same development, makes little difference for our purpose. Both negatives must be exposed one right after the other so there is no change in light intensity, and must be developed together in the same developer for the same time.

In actual practice it is well to take an outdoor subject of normal contrast such as Figure 5, with a solid tone area that will give an even deposit on the negative of at least $\frac{3}{16}''$ in diameter. The side of a white house as in Figure 5 is an excellent test subject. The deposit from which density measurements are made on a correctly exposed negative should preferably have a density between .5 and 1. This will insure that portion of the negative being on the straight line portion of the curve. In making the second exposure open the diaphragm one stop and keep the same shutter setting instead of changing the speed. Shutters are not necessarily accurate whereas stops are.

$$\text{The Value of Gamma} = \frac{\text{DIFFERENCE IN NEGATIVE DENSITIES}}{.3}$$

This is a simple solution but you must understand logarithms to find out why it works.

Assuming you have measured the densities of the same area on two negatives, one exposed 2x the other and both developed together in the same developer for the same time, your calculation should look something like this:

$$\text{GAMMA}^* = \frac{.851 - .529}{.3} = \frac{.322}{.3} = 1.07$$

These figures were taken from the subject, Figure 5, photographed on a bright day in full sunlight on Verichrome developed for 15 minutes in D-1 Pyro at 65°.

There may be a few moments of rough going over what you have read here but if you will follow the reasoning behind all this, step by step, and actually try it out you will find it much simpler than it appears and really very easy.

In presenting scientific material such as this, it is necessary to simplify matters so that the discussion can be understood and the experiments performed by those without scientific training. Such simplification is sometimes aggravating to scientists who feel that the scientific concept can only be correct when stated in complete scientific terms. This, however, amounts to saying that science is only for scientists.

Simplifying the procedure for measuring gamma, as is done here, enables the photographer to better understand the scientific concepts involved and to use these concepts to make better pictures. The accuracy is sufficient for all practical purposes even though the precision methods of a great laboratory are not used.

In "Make Your Pictures Sing" there is a time-gamma table of all the well known films with the developers recommended by the manufacturers. While this table represents accurate sensitometric laboratory tests, there are bound to be variations in various batches of emulsions. In using the system of exposure and development recommended in "Make Your Pictures Sing" this method of checking the gamma obtained in development can be used whenever wanted by making a second exposure of some average subject with twice the exposure time. This film is processed right along with the rest of the negatives and it acts as a check on the entire system.

I have had a number of letters asking if I could furnish information for time-gamma tables with developers other than those recommended by the manufacturer. The method outlined here is the easiest way I know of to get such information.

Now that you have a method of measuring the densities on your negative, a measurement of the density range will give you some valuable information about printing quality. The density range of a negative is the

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* This equation for gamma is derived from the standard equation

$$\text{GAMMA} = \frac{(D_2 - D_1)}{(\text{Log}_{10}E_2 - \text{Log}_{10}E_1)}$$

It is obvious that $D_2 - D_1$ is the difference in negative densities. Below the line we are dealing with logarithms of exposures where one exposure is twice the other. The difference between the logarithms of any two numbers, one twice the other, will always be .301. For example,

$$(\text{Log}_{10}\ 4 - \text{Log}_{10}\ 2) = (.602 - .301) = .301$$

Therefore, the number below the line will always be .301 or for our purposes .3.

For a concise presentation of sensitometry "The Handbook of Photography" is highly recommended.

Figure 5.

A typical outdoor scene from which to make gamma determinations. Use the Weston group rating rather than the maximum speed rating to avoid underexposure.

difference in density between the most transparent deposit and the most opaque deposit. When the density range is .6 hard paper should be used. If the density range is below .6 you cannot produce a full scale print on any paper. When it is .75 a medium paper is called for. When it is 1. a normal paper is used and when it is 1.3 a soft paper should be used. If the density range is greater than 1.3 the range of the negative cannot be accommodated by the paper. The easiest negative to print is one with a density range of 1.

In Figure 5 the density of the lightest point (dense area on negative) just above the middle window, measures 1.30, the density of the large white area of the lower portion of the house which is in shadow measures .529. If this negative was used for a gamma determination this area would be selected for measurement because it has an even silver deposit over quite an area and the density lies between .5 and 1. The darkest point, (transparent area on negative) the glass of the center lower window, measures .231. The density difference is 1.06 (1.30—.231) which means this is the best type of negative and will print well on normal paper.

If you are making enlargements, and few photographers are left who work with contact prints, strive for a thin but full bodied negative with the density range of about 1. These measurements give you a splendid means of checking up on the general quality of the negatives with which you are working.

You can also check up on the amount of fog that you are getting in development. Measure the density of the rabbet around the edge of a

negative where the film has not been exposed to light but has had the full action of the developer. If this density is greater than .3, which is considered permissible, you had better look for trouble. In Figure 5 the density measured from the rabbet of the negative was only .193.

Keep records of your density measurements and sometime you may make the acquaintance of some enthusiastic photographer who owns a densitometer. Check your results with his direct measurements and I think you will be amazed at your own accuracy with these simple measurements and calculations.

Making density determinations will give you a lot of information about any new developer in comparison with the one you habitually use and it also can give you a lot of information about the one you are using if your results are not entirely satisfactory. It has long been my belief that a minute more will never create a masterpiece nor will the addition of this, that, or the other chemical help materially. These measurements will show all the unbelievers why. But then I sometimes wonder if the unbelievers will take the trouble to make them.

Light Is Everything

C. Stanton Loeber

LEONARD MISONNE, the great Belgian Photographer, who for more than forty years has been one of the world's great Pictorialists, has been called Poet of the Mud. He might better have been called Poet of Light.

"The subject is nothing, light is everything," he has said. Where others have photographed brilliantly lighted cabbages, knives, water faucets, starkly naked bits of realism; Misonne loves haze, storms, snow, fogs, bad weather. Where others strive for an all over anastigmatic sharpness and a profusion of detail, the great Belgian strives for a suppression of detail. He early recognized this was the road to art, and his nearly half century of outstanding success bears him out.

On fine, sunny days he exposes no film. There is no atmosphere, he says. He wants the shrouding mystery of fog and haze, the glory and the romance that wet pavements and muddy roads reflect when shot against the light. It is not detail he seeks: it is the mood of a landscape, the feel of mystery and beauty.

And when you see a Misonne, you feel with him the thing he felt;

"Forest Flock" *C. Stanton Loeber*

the wetness, the fog, the foreboding skies. There is none of the crisp sharpness, showing detail that the eye had never noted, no glossy papers, no evidence of a lens perfectly corrected. But there is beauty that appeals to everyone, be he layman, who never touched a camera, or an expert.

And do we, whose love is photography, profit by his experience? Rarely! When the day is wet and the fogs roll in, when haze cloaks the distant hills and mud is on the ground, we hug our radios and our fires. We wait for the bright days of summer when the sun is high and shadows black. We shoot for sharpness and detail. We get realism—and little else.

For a new thrill in photography, try the bad weather days. Try photographing against the light. Get up early when the shadows are long. And, seeking pictures, travel against the light. Watch for the mist laden sun rays filtering through the trees in the late afternoon. See the beauty of light reflecting from wet, broken bits of pavement, the beauty of half hidden trees in the fog.

Learn to see things as they are, not as we think they are. Watch the curl of smoke from a chimney, when seen with light streaming through it. It is vastly different from the same smoke, when seen with light flat upon it.

Because our senses tell that a white building is white, we never realize that it is white only when the sun shines upon it. Shadowed areas are gray—not white.

Objects seen against the light have been touched with a magic wand, if only we will see. Watch children and the halo such lighting makes of

"'Cross Channel" *C. Stanton Loeber*

their hair. Watch the gilded curves light makes of the backs of cattle and sheep grazing in a meadow. Watch for the glisten and the gleam of ice crystals and dew drops shimmering against the light.

Such pictures will have much shadow area in them. They will be on the low key side, hence more dramatic than the lighter or higher keyed prints. The highlights will be stronger because of the contrast with the dark shadows.

Exposure must be generous in order to capture shadow detail. To keep the highlights from blocking up and becoming unprintable, development

must be shortened. This will vary from about 20% to as high as 50% in extreme contrasts.

" 'Cross Channel" depends for interest upon the reflected light from the boats wake. If shot with the light behind it, it would be just another record shot similar to thousands of others. Unwanted detail has been lost in the shadowed sides of buildings and boats. Light—reflected light—has made a picture.

If normally exposed and developed, the light on the water would be nothing but white paper, the water beside the path of light so black that all detail would be lost.

Because of the brilliance of the light a meter reading would give an exposure far too weak. If memory is right, this exposure was 1/50 at F:8 on Panatomic X and development curtailed one half.

Because of the inability of film to register light and shade as the eyes see it, considerable dodging is necessary in printing against the light exposures. In " 'Cross Channel," the foreground had to be printed three times as long as the middle distance. In order to show form and outline in the buildings and wharf, these received but 20% of the printing time for the foreground.

This is not due to incorrect exposure nor incorrect development. It is due to the unequal reflection of light. Film cannot record this light as the eye sees it. As craftsmen, dexterity in dodging must be developed that these inequalities may be corrected.

When photographing against the light, direct sunlight must not strike the lens. This causes flare on the negative. Yet, in the taking of "Sunburst" this could not be avoided. So three exposures were made from three different positions. Though all had flare, one was untouched in the section used for making this print.

"Forest Flock" was taken late in the afternoon. Sun rays penciled themselves through the dust rising among the trees. By shooting the sheep in the strongest light and against the dark background of trees, they are given the greatest prominence. This lends carrying power to one's picture; it can be seen without getting too close. This contrast gives punch, showmanship. And if you want your pictures looked at, they must have this punch. Against the light photographs do this.

Of course, one's pictures must be well composed, the several parts so arranged that one idea predominates with everything else subordinate, yet contributing to that single idea.

Composition and light are least considered in our photographic pursuits. Yet, they are the most important. Misonne has said he knows nothing of technique. He knows everything of light. Yet there is a great scarcity of literature on the subject. Search the photographic publications, there is scarcely a mention of its importance.

Against the light photography lends charm and enchantment to even the most commonplace. It lends a poetry that never existed—if we but have the eyes to see.

Misonne was revolutionary at a time when lenses were poor and sharpness was the goal of every photographer. Today, with the use of Dagors,

"Sunburst" *C. Stanton Loeber*

Tessars, Ektars, and the even greater cry for celery crisp sharpness. he is considered by many as reactionary.

But there are those who have learned the beauty that "against the light" shots can create. Look on the walls of the world's famous Salons. There will be a few of these: they will have an appeal that no "F:64" shot of a board fence can ever have. These are the pictures that everyone understands.

Learn to see against the light. Misonne did. and he became world famous. My own efforts have been far better received since I learned this. And with Misonne, I will say "light is everything."

Technical Problems Of Kodachrome Exposure

Dudley Haskell*

"When you can measure what you are speaking about and express it in numbers, you know something about it, and when you cannot measure it, your knowledge is of a meagre and unsatisfactory kind."—Lord Kelvin.

ABOUT fifteen years ago exposure was a minor matter in the consideration of the artistic photographer. For example a world-renowned landscape photographer announced that it was his custom to overexpose his plates so that they developed rapidly and thus spared him unpleasant moments in the inartistic confines of his darkroom. Later these "saved" moments were expended on a controlled printing process to bring the inadequately rendered prints to a state of beauty satisfying to the artist.

Today the Kodachrome photographer (a term which has almost become synonymous with color photographer) realizes that given a satisfactory subject his major problem is correct exposure. Fortunately, correct exposure can be reduced to a mathematical formula, but to apply this formula it is necessary for the photographer to understand the nature of color and the fundamentals of sensitometry.

When Kodachrome first was introduced in April, 1935, many users employing reliable photoelectric exposure meters were disappointed to find that their carefully exposed film was very improperly rendered. At present less trouble is experienced, but it is still well recognized by the Kodachrome film makers and the meter manufacturers that the simple method of exposure determination, as used in black and white photography, is not always applicable to color reversal film.

* Chemist, W. P. Fuller & Co., San Francisco.

If the user of Kodachrome is willing to limit his scenes to the standard conditions listed in the Eastman instruction pamphlets, he can assure himself of invariably correct exposure. When unusual conditions are encountered, it is customary to consult an exposure meter and, if possible, give three exposures—one as indicated, one slightly under, and one slightly over the indicated reading. If one is working with 35 mm. film, the waste of two films is not an exceedingly important consideration where perfect photography is the aim. However, for serious workers who desire to use cut film in the larger sizes, such a procedure is too costly.

The Meter Is Calibrated for Medium Color Values[1]

The meter has a sensitive cell which responds to visible radiations more or less in the same manner as the human eye. It differs from the eye in that it integrates the light and dark portions and gives a reading intermediate between these. This reading is then interpreted into an exposure (by rotating dials with shutter speeds, film speeds, time and foot-candles) which assumes that the scene is of average brightness or, if made up of light and dark objects, so balanced that when integrated the result is of average brightness. Having assumed this conventional condition an exposure is indicated which will convert the processed film into a positive of average transparency.

Definition of Average Brightness

In general, an "average" three dimensional scene reflects about 12 per cent of total incident light. Psychologically a *flat* surface having a reflection of 18 per cent is considered average. Scientific experiments[2] have shown that persons of normal vision will almost invariably select a gray of approximately this reflection when required to indicate a shade intermediate between white and black. In the case of average reflection for the meter, 12 per cent is taken instead of 18 per cent because the normal scene is three dimensional and consequently contains shadows and highlights. The shadows predominate over the highlights and reduce the total average reflection from 18 per cent to about 12 per cent.

An exposure meter will only give a correct result when the colors are approximately average or, if composed of light and dark, in the proper proportion to approximate an average.

Practical Tests on Standard Color Chart

In the case of a color chart such as the Red page of the Munsell Book of Color (fig. 8) R6/10* according to a Photrix Photometer reflects 39.6 per cent, while R3/10 reflects 11.9 per cent (Table III, column 2) of the incident light. If we were to photograph R6/10 reflecting 39.6 per cent, or approximately four times more light than R3/10, according to an exposure

[1] Lange, Dr. Bruno. Photoelements (1938), p. 223, "The determination of the time of exposure of an object with very different brightness values by means of the measurement of light flux is wrong."

[2] Munsell, Sloan and Godlove. Munsell Value Scales. J. O. S. A., November, 1933. p. 410.

* The meaning of this designation and other technical color terms such as hue, chroma and value are explained in the section on the Munsell System of Color Notation.

meter, then we would give ¼ the exposure time or stop down two stops more for the higher reflecting color. By actual experiment (Normal, fig. 8) it can be shown that R6/10 and R3/10 can be correctly represented on the same film, and hence, necessarily, at the same exposure. Since Kodachrome has no exposure latitude, it follows that if one of these colors is given four times the exposure of the other, one of the colors at least must be incorrectly rendered, and, consequently, the error of relying implicitly on the reading of the exposure meter is demonstrated.

Meter Readings on Medium Bright Colors

Suppose we were to photograph a room in which the furniture and walls differed in hue, but reflected always 18 per cent as compared with pure white (freshly deposited magnesium oxide)[3]. Our meter would assume this scene as reflecting 12 per cent incident light (the shadows accounting for the loss of 6 per cent) and give an interpretation which would result in an exposure giving a transparency transmitting* 12 per cent. This transmission per cent is obtained by comparing the transmission of the recorded image with a clear film of Kodachrome containing no dye. This would represent correct exposure.

Meter Readings on Same Room Painted in Light Colors

Suppose then we painted this room in colors of the same hue as before but lighter in value. This time we would select, instead of medium colors, light colors reflecting 3 times 18 per cent or 54 per cent. Due to shadows, as before, our meter would read 36 per cent (3 x 12%). The meter would disregard the fact that the colors were lighter (and should be represented as such) and simply indicate that an exposure of one-third the former was necessary. This would result in a transparency of the light colors having the same density as the transparency of the medium dark colors, viz.: 12 per cent transmission. This most likely would be entirely too dark for satisfaction. The opposite example could be cited, such as very dark colors being represented as medium.

Meter Reading on a Black Background with a Fine Light Pattern

An interesting example would be to photograph a black vase having a pattern of fine light, let us say, green lines. The green lines would occupy such a small area as to have only a negligible effect on the reading of the meter. The problem in this case would be to correctly represent the green lines, letting the black take care of itself. The black reflects about 2 per cent and the green, as in the case of the light-colored room, reflects 54 per cent. Let us assume that this vase was illuminated by exactly the same strength of light as the room already mentioned. Our meter reads 3 per cent reflection on the vase, the small area of green lines having raised the

[3] Bureau of Standards Letter Circular No. 395. "Preparation and Colorimetric Properties of Magnesium Oxide Reflectance Standard." MgO—98%.

* Clear film is taken as equivalent to 100 per cent transmission and represents pure white transmission in the same manner as magnesium oxide represents pure white reflection.

In actual practice ordinary surfaces reflecting 3 per cent incident light are considered black. The whitest white paints reflect about 88 per cent when freshly painted. On photographic surfaces seen by reflection the range is 1 to 30. In the case of Kodachrome the range varies slightly with the processing, but is approximately 1 to 200 by transmission. The density of clear film (which usually contains some unwashed dye) is 0.2000. The density of unexposed but developed film is 2.520.

$2.520 - .2000 = 2.320$. Anti-log $2.320 = 209$.

black from 2 per cent to 3 per cent. Following the interpreting dials we give an exposure of 12/3 average reflection, or four times as long as an average scene of 12 per cent reflection.

We thus have a green of the same brilliance as the walls of the light-colored room, under the same intensity of illumination, exposed at four times normal in the case of the dark vase, and one-third normal in the case of the light-walled room. Yet the exposure should be the same in each case for identical rendition of the same color. Here we have an indicated difference of 12 times or 4½ stops—the difference between f:4 and f:18, for example.

When a light color is read by the meter it is reproduced medium; and a dark color is also reproduced as medium. If a small dark area be present with the larger light area it will, of course, be very noticeably underexposed, and conversely a small light area with the dark will be badly overexposed.

The Gray Card

In order to prevent errors like this the writer suggested in a previous article[4] that a gray card be placed before the subject to be photographed. If the reflection value of this card were 12 per cent, then the readings of the meter could be assumed to be correct without further calculations.

Since the calibrations and spectral sensitivities of various makes of meters differ, it is not possible to guarantee the accuracy of any specific relationship between exposure readings and the gray card. Final adjustments can be worked out by the reader for his own set of conditions.

Shortcomings of the Gray Card System

The gray card has proven its worth, but it should be recognized that under some circumstances it fails to give reliable information and in certain other uses it is not at all applicable.

One of the disadvantages of the gray card system is its failure to take into consideration the strength of the light reflected from the shadow portions of the picture scene. This can be readily understood when it is pointed out that the light which illuminates the gray card is not the same as that which illuminates the shadows. The gray card is merely a device for measuring the intensity level of illumination falling on the scene. Furthermore, the gray card is not at all applicable to subjects illuminated by transmitted light, such as stained glass windows, lamps, and other transparent objects lit from behind. Another field in which Kodachrome is receiving increasing attention is photomicrography. Here the gray card is also unusable. (See Figure 12, Part II*.)

Because of the numerous instances in which the gray card was unsatisfactory and also because a precise and scientific method of predicting the effect of varying exposures was needed, the writer decided to extend the principles underlying the gray card system.

Reflection and Transmission Factors for Different Colors

If all the colors visible to the human eye could be applied as paints

[4] Kodachrome Exposure. Camera Craft. March, 1938.

* The second half of this article will appear in the December issue.—Ed.

to a flat surface, they would include dark colors, light colors and medium colors, also colors of every hue from red through yellow to green, through blue to purple. Some of the colors would be pure or saturated, such as the scarlets, magentas, and oranges; others would be subdued, such as, the olives, browns, blue grays and creams. Black would reflect the least light and white the most. Between these extremes every color would be found.

If a designation were given to each color and the whole group of visible colors were photographed simultaneously on Kodachrome, then it would be possible to study the relationship of the various hues and the effect of exposure on rendition. For example, the transmission of processed Kodachrome of a light green reflecting 54 per cent could be compared with a dark green reflecting 4 per cent. By means of uniformly varying the exposures for the whole group the effects of various degrees of over- and underexposure could be determined and compared. By reference to the chart it would thus be possible in actual practice to predict the exact appearance of any given color on the finished Kodachrome.

To put this plan to practical use would require a reading of all the colors under a standard light on some sort of light measuring device, such as a footcandle meter. Having read these, a series of exposures would be made. The exposures which best represented the largest number of colors would be called normal and the Kodachrome film designated as Normal. Other film would be designated as: 2x Overexposed, 4x Overexposed, 2x Underexposed and 4x Underexposed. It would be found that for certain colors overexposure was less harmful than for others and, conversely, others could stand greater underexposure. It would also be demonstrated that when all colors from light to dark were present in one scene it would be impossible to correctly render them all simultaneously.

Applying the Munsell System to Color Photography

The human eye can distinguish an almost infinite number of colors. It was decided that out of this nearly unlimited quantity a few wisely chosen representative samples be selected to serve as guides for the complete color vision. It was necessary to limit the program to the relatively few colors which could be conveniently represented on a color chart.

The work was undertaken with 253 colors as standardized and maintained by the Munsell Color Co. These comprise the 10 main hues available for reference in the Munsell Book of Color.*

The following data were recorded on the selected colors:

1. The reflection of each color under measured and uniform light by means of an accurate photoelectric photometer.

2. The relative reflection through red, green and blue filters, from which color coefficients were calculated.

3. The transmission on normally exposed Kodachrome for each of the 253 standard colors. Also the same for one stop overexposure, two stops over and one and two stops under.

4. Relative transmission through red, green and blue filters, from which color coefficients were calculated.

* The Munsell Book of Color. Published by the Munsell Color Co., 10 E. Franklin St., Baltimore, Md. Price $45.00. Abridged Edition, $15.00.

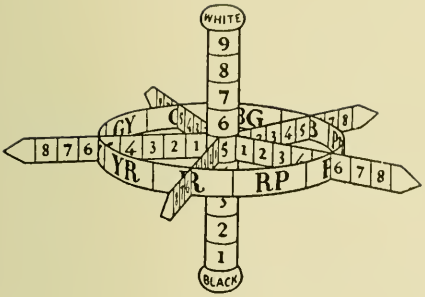


Figure 1

Diagram showing HUE, VALUE and CHROMA in their relation to one another. The circular band represents the HUES in their proper sequence. The upright center axis is the scale of VALUE. The paths pointing outward from the center show the steps of CHROMA, increasing in strength as indicated by the numerals.

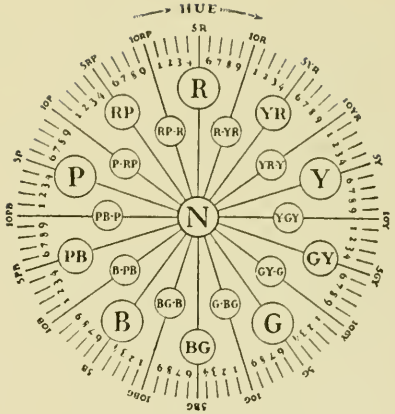


Figure 2

Diagram showing the names of twenty HUES and the numerical notation of HUE. The circle represents any horizontal plane cut through the color sphere.

By reference to the recorded data it was possible to plot exact exposure and also to determine in a quantitative manner the accuracy of rendition.

Before examining the results it is recommended that the reader familiarize himself with the fundamental principles underlying the Munsell system. By so doing he will increase his ability to expose Kodachrome properly and in addition make himself master of the most suitable and systematic conception of color available to the worker in mechanical color processes. For a complete discussion of the subject, the reader is advised to consult the Munsell Book of Color or other books and papers dealing with the Munsell system.

However, as a means of acquainting the color photographer with the conception of hue, value and chroma, the Munsell Color Co. has kindly granted the writer permission to describe its system.

The Munsell System of Color Notation

To the normal human eye color has three dimensions: Hue, Value and Chroma. Each of these three color dimensions or properties can be considered and measured separately, regardless of the other two. They may be defined briefly as follows:

Hue is the name of a color. It is the property by which any color of the spectrum is distinguished from the other colors and it is the first characteristic of a color that the eye detects.

Value is the lightness or darkness of a color. It is the property which bears a relation to the amount of light reflected from the surface of any color.

Chroma is the strength or weakness of a color. It is the property which governs the intensity or purity of a color.

Since the three dimensions of color must be as readily understood as the dimensions of a box, it is necessary to have in mind some simple, orderly arrangement of all colors, in which Hue, Value and Chroma are separately identified and yet comprehended together. A sphere serves this purpose.

Hue

Imagine the different hues running from red through yellow, green, blue and purple back to red again arranged in a circle as shown in Figures 1 and 2. The hue circuit is first divided into five equidistant principal hues: Red, Yellow, Green, Blue and Purple. Spaced evenly between each two of these in the order named are five intermediate hues: Yellow-Red, Green-Yellow, Blue-Green, Purple-Blue and Red-Purple. All the hues are so spaced that those which are exactly opposite to each other on the color sphere are complementary, viz.: they balance to a neutral gray. For example, Red is the complement of Blue-Green, and Yellow is the complement of Purple-Blue. If it is desired to express even finer distinctions in hue than provided for in the simple notation described above, a numerical notation of Hue is provided (see Figure 2).

Value

Imagine a series of different Values running from black, through the grays, on a straight line up to white. This line of value passes perpendicularly through the centers of the circles of hues. The eye can readily distinguish and *memorize* ten different steps of value, hence the numerical notation of Value runs from 0 (Black) to 10 (White). Any pure gray is known as Neutral and is indicated by the initial N. At the level of each step of Value is a plane including all colors of the same Value as the Neutral. In the simplified notation three groups of Values are recognized, ranging from dark Values which are just above Black, through middle Values to light Values which are just below White.

Chroma

Imagine lines drawn radially on each circle representing a plane of constant value from the Neutral center to the strongest Chroma obtainable in each particular hue. Figure 1 shows five typical radial lines on the 5 level of Value. The equal steps of chroma are numered outward in these radial lines, starting from zero at the center. In the simplified notation the Chromas close to Neutral are called "weak" Chromas; those at or near maximum strength are called "strong" Chromas; and those between the weak and the strong are called "moderate" Chromas. Thus to notate any color, it is only necessary (1) to choose its Hue in the sequence of colors around the color sphere, (2) to indicate its Value according to the neutral scale axis of the sphere, and (3) its Chroma according to the chroma scales of color strength. The Munsell Book of Color provides scientifically accurate charts for the purpose.

(Continued on page 574)

Making Lantern Slides

Jack Wright

Part II

LAST month we discussed the materials available for lantern slides and the methods of printing such slides. This month we pass on to problems of exposure and development. Slides are considerably more critical than paper in exposure and development. The density and contrast of a slide are dependent upon (1) the length of its exposure, (2) the type of developer that is used, (3) the length of time it is developed, and (4) the type of negative it is printed from. These are a large number of variables. A great aid in coping with some of them is what is known as the Watkins factor.

The object of the Watkins factor is to permit us to duplicate as often as we please the conditions of development that have produced a satisfactory slide. The factor is the relation between the time required for the image to make its first appearance on the slide after it has been placed in the developer and the total length of development. In other words, if the time required for the image first to appear is five seconds and if the slide reaches its proper contrast in 50 seconds we have a Watkins factor of 10. If, later, we know the Watkins factor for a slide and desire to develop another slide to the same contrast, it is a simple matter to multiply the time required for the image to appear by the factor of 10 and we will produce a slide, the contrast of which duplicates that of the first one.

If the image appears in three seconds we will develop the slide for three times 10 or 30 seconds. If the image appears in six seconds we will develop for 60 seconds, and so forth.

A good average Watkins factor is 10 for most developers. The slide maker who is in doubt will do well to start with this and increase or

decrease the factor depending on whether the slide produced is too contrasty or not contrasty enough.

As previously stated, lantern slides come in three grades—soft, medium and contrast. Soft slides, which are much faster than the others, are for negatives that are hard and contrasty. Medium slides are for medium, average, well-balanced negatives. Contrast slides are for negatives that are thin and weak. The beginner in lantern slide making will do well to select brilliant, sharp negatives to start with, and use medium slides. Later he can try negatives that are more difficult to print.

Before discussing the actual making of the exposure, let us see what qualities we seek in a well-made slide. Slides, needless to say, are more dense than negatives. They have to be able to stand projection with a strong light on a screen. Some experienced slide makers prefer a slide in which the darkest portions are solid black and the lightest portions clear glass. Others prefer the slide's deepest portions to be slightly less than dense black and the lightest parts to have some suggestion of tone. The slide maker can later decide which standard he prefers. At the beginning he should seek a slide which is clean and sharp, with good, strong contrast and with blacks that are definitely black and not gray.

Mr. Frank R. Fraprie in his book, "How to Make Lantern Slides," suggests that the beginner secure two or three good slides from a company which sells them so that he will know what he is "shooting at." In any case making a few slides will teach more about slide quality than can be told here.

Development of slides should be done in a fairly small, white tray. White is specified so that the degree of contrast of the slide may be watched as the slide develops. Development should be carried on under as strong a light as is safe. If the tray is fairly small, developer may be changed frequently, which reduces variations in developer strength because of oxidation.

The lantern slide maker should note one important difference between slides and paper. In making prints on paper it is customary to allow development to go as far as it will, just short of fog. This can be safely done with paper but slides are more critical, the slide continuing to grow and more contrasty the longer it is left in the developer. That is the reason for developing for a certain, definite length of time or using a Watkins factor.

Until the slide maker has gained a great deal of experience it will be necessary to arrive at the correct exposure and development by making test slides. To make such a slide, place an undeveloped slide in the printing frame or on the easel of the enlarger. Have a piece of cardboard larger than the slide ready at hand. Turn on the light and expose all the slide to it. After two seconds, move the card until it covers one-fourth of the slide. After two seconds more move the card until it covers half the slide. After four seconds more move the card until it covers three-fourths of the slide. After eight seconds more switch off the light.

We now have a slide, one-fourth of which has been exposed for two seconds, one-fourth for four seconds, one-fourth for eight seconds and one-fourth for 16 seconds. Place this test slide in the developer for a definite

length of time (say 2½ minutes) or develop to a certain selected Watkin factor—possibly 10. Then rinse the slide for an instant in water and place in the hypo. After the slide has cleared examine it against a light or, better still, place it in a lantern and project it.

It is likely that one of the four gradations on the slide will be satisfactory. If so, make the final slide according to that particular exposure and developing time. If all the gradations show signs of underexposure, make another slide the same way, using exposures of four, eight, 16 and 32 seconds or five, ten, 20 and 40 seconds. One of the sections of this new slide should be satisfactory.

If all parts of the test slide seem to be overexposed, make another test slide, exposed for one, two, four and eight seconds, being careful to use the same Watkins factor or development time. Make the final slide according to the exposure time which is satisfactory.

It may be noted that this method of making test slides is more applicable to the 3¼ by 4 inch slide than the two inch one. If the smaller slides are being used, it will probably be possible to get only two test times on one slide. These should be two and four seconds, eight and 16 seconds, 10 and 20 seconds or some similar relation. The same number of tests can be made but it will be necessary to use more slides.

Another way to make test exposures is with bromide paper. Many photographers find this a very satisfactory method. The Eastman Company gives the following relations between the speed of their Kodabrom paper and their lantern slides:

Kodabrom Contrast Grade	Eastman Lantern Slide Plate	Times Faster Than Kodabrom
No. 1	Soft	25
No. 1	Medium	2
No. 2	Medium	3
No. 3	Contrast	4
No. 4	Contrast	5

It should be noted that the soft lantern slide gives considerably lower contrast than Kodabrom No. 1.

It is the practice of the writer to place the negative in the enlarger or printing frame and focus in the usual manner. When the exposure is made a small piece of Kodabrom paper is used instead of a slide. It may be necessary to use several sheets of paper but eventually an exposure which produces a satisfactory print is found. If Kodabrom No. 4 has been used and if a contrast slide is to be employed, the exposure of the test print is divided by five when the slide is exposed. If a satisfactory print has been made in 50 seconds on Kodabrom No. 4, a satisfactory slide will be made with an exposure of 50 divided by five, or 10 seconds. If the test has been on Kodabrom No. 3 a satisfactory slide on a contrast plate will be made in 50 divided by four, or 12½ seconds. The same method can be used with other grades of Kodabrom and other grades of slides.

After the correct exposure time has been learned and a satisfactory slide has been printed, it should be allowed to fix thoroughly and then, if possible, should be examined by placing it in a projector. The reason for this is that a far better idea of the qualities and defects of a slide can be obtained when it is projected than when viewed in the hand. After inspec-

tion the slide should be washed for at least 15 minutes in running water and then should be stood in a rack to dry in a dust-free place.

There are four common faults with slides. If the slide is too thin, underexposure is indicated and another slide with a longer exposure should be made. If the slide is too dense, overexposure is shown. The next slide should be made with a shorter exposure.

Slides that are too contrasty indicate either that the slide has been overdeveloped or the wrong contrast grade of slide has been used. If the contrast is too low it means either too short development or the wrong contrast grade of slide. It is easy to make the necessary corrections.

One word of warning may be given here. Do not attempt to make a slide "look right" by jerking it out of the developer too soon or leaving it in too long. Both steps result in degraded tones. The density of the slide is determined wholly by the exposure and tampering with it in the developer cannot but result in a faulty slide.

There are several developer formulæ which yield good results. The Eastman Company recommends its Nepera solution, diluted 1:4 or 1:6. It also offers the following formula (D-34) as particularly suited to its slides:

	Avoir.	Metric
Stock Solution A:		
Water (about 125 degrees F.) (52 C.)	16 ozs.	500 cc.
Elon	60 grains	4.2 grams
Sodium Sulphite (E. K. Co.)	½ oz.	15 grams
Hydroquinone	½ oz.	15 grams
Cold water to make	32 ozs.	1 liter
Stock Solution B:		
Water	32 ozs.	1 liter
Sodium Carbonate (E. K. Co. dessicated)	½ oz.	15 grams
Potassium Bromide	30 grains	2.1 grams

For use, take one part of A and one part of B. Develop 1½ to 3 minutes at 70 degrees Fahrenheit or 21 Centigrade. For softer tones use one part A. one part B and one part water. Do not wet the plate before developing.

Mr. Fraprie gives two excellent formulæ for black and white slides in his book:

Amidol Developer (One-Solution)

	Avoir.	Metric
Amidol	32 grains	4 grams
Sodium Sulphite (dry)	192 grains	25 grams
Potassium Bromide	16 grains	2 grams
Water to make	16 ozs.	1000 ccm.

The sulphite should be dissolved first in about 12 ounces of water, then the amidol and bromide should be added and the volume brought up to 16 ounces.

Mr. Fraprie's Hydroquinone developer (two-solution) follows:

	Avoir.	Metric
Stock Slution A:		
Hydroquinone	64 grains	8.5 grams
Potassium Bromide	96 grains	13 grams
Potassium Metabisulphite	64 grains	8.5 grams
Water to make	16 ozs.	1000 ccm.
Stock Solution B:		
Caustic Potash or	128 grains	17 grams
Caustic Soda	90 grains	11.5 grams
Water to make	16 ozs.	1000 ccm.

Use equal parts of A and B at a temperature not below 65 degrees F. or 18 C.

The Defender Company recommends a formula similar to the D-34 of Eastman. It also recommends for warmer tones the following:

Hydroquinone Developer

	Avoir.	Metric
Stock Solution A:		
Hot Water	16 ozs.	730 ccm.
Sodium Sulphite	90 grains	9 grams
Hydroquinone	100 grains	10 grams
Potassium Bromide	50 grains	5 grams
Citric Acid	10 grains	1 gram
Water to make	32 ozs.	1460 ccm.
Stock Solution B:		
Cold Water	32 ozs.	1460 ccm.
Sodium Carbonate	1 oz.	44 grams
Caustic Soda	60 grains	6 grams

Use equal parts of A and B at 65 F. For increased warmth of tone use two parts of B to one of A.

The formula for the acid hardening fixing bath follows:

	Avoir.	Metric
Sodium Thiosulphate (Hypo)	16 oz.	480 grams
Water	64 ozs.	2 liters

When the hypo is dissolved completely, add the following hardening solution:

Water (about 125 degrees F. or 52 C.)	5 ozs.	160 ccm.
Sodium Sulphite	1 oz.	30 grams
Acetic Acid (28% pure)	3 ozs.	96 ccm.
Powdered Potassium Alum	1 oz.	30 grams

To make 28% acetic acid from glacial acetic acid dilute three parts of glacial acetic acid with eight parts of water.

In making up the hardener, dissolve the chemicals in the order given. The sodium sulphite should be dissolved completely before the acetic acid is added. After the sulphite-acid solution has been mixed thoroughly, add the potassium alum slowly, while stirring constantly. Cool the hardener and add it slowly to the cool hypo solution. The hypo must be dissolved before adding the hardener or a precipitation of sulphur may occur.

For the most part, the best cure for a faulty slide is to make a new slide, dipping the old one into almost boiling water for a moment and removing the emulsion so the slide may be used for a cover glass. There will be cases, however, where slides can be improved somewhat by reduction or intensification. The formula for the well known Farmer's Reducer follows:

Farmer's Reducer

	Avoir.	Metric
Stock Slution A:		
Potassium Ferricyanide	15 grains	1 gram
Water	1 oz.	32 ccm.
Stock Solution B:		
Hypo	1 oz.	30 grams
Water	32 ozs.	1 liter

Add A to B and immediately pour over the slide to be reduced.

The solution should be used soon after A and B are mixed, as it decomposes quite rapidly after mixing. When the slide has been sufficiently reduced it should be thoroughly washed. The slide may also be reduced locally by applying the reducing solution to the wet slide with a bit of absorbent cotton and then washing thoroughly.

The Eastman Chromium Intensifier may be used to intensify a slide or it may be intensified by one of the after-toning processes which will be described in Part 3 of this series, which will appear in Camera Craft next month.

Cinema Section

Edited by

William A. Palmer

Hypersensitization Of Movie Film

R. S. MacCollister

ANYONE who has shot much movie film has come across situations where he has sworn by all that's good and great that he would give his very life for a faster film. That prayer has been answered, in part, by the film manufacturers who have given us faster and faster black and white films, one after another, until films as superb as Kodak Super XX and Agfa Triple S Pan are available to all.

The cry for speed in color films, however, is another matter. True, the present film is faster than the original Kodachrome, and immeasurably better. But it is still slow, though rumor has it that speed increases are in the offing.

The answer is, of course, that, if the film manufacturers are not yet able to give us faster films, it is for the amateur to speed up his films by hypersensitization, where and when he wants to do so.

There are three methods whereby this speeding up of already prepared films may be done. They are by means of heat, ammonia, or mercury vapor.

In the first mentioned method, the film is stored at a constant temperature considerably above room temperature—about 100 degrees Fahrenheit—for about three days *after* exposure. The heat should be very constant. This will increase the speed of the film from 50 to100%. The method has, however, two very strong drawbacks. The first is the difficulty of maintaining the temperature. The second is that color film is particularly sensitive to the effects of heat. Exposure to heat for any appreciable lengths of time will do vile things to the color balance—the effects of the damage to the color more than offsetting the advantage of the speed gained.

The second method is to bathe the film—in total darkness, of course—in a solution composed of one-half to one ounce of Ammonium Hydroxide 28% in 100 ounces of water for four or five minutes, and then dry it carefully. This increases the speed by about 100%, or one stop.

An alternative to this method is to expose the film to the fumes arising from

ammonium hydroxide for a period of time. This increases the speed from 100% to 200%.

These two methods—actually variants of one method—have four serious faults. The first is, without doubt, the difficulty of handling 100 feet of film in this treatment, not to mention the effects of ammonia fumes on the human system. I leave the reader to imagine—quietly, in the seclusion of his study—the effort of trying to bathe a ribbon of film 5/8 of an inch by about 109 feet in size in noxious ammonia water in total darkness, without special and costly equipment. Secondly, this treatment affects the grain size of the film adversely. While this will not be so noticeable with Kodachrome, since the grains of silver are removed in the final steps of the processing, this will reduce the ability of the film to record fine detail and the pits in the gelatin where the silver grains were, will be more apparent. Thirdly, the treatment, if by liquid ammonia water, must be done at less than 65°, since the ammonia will break down the gelatin emulsion at higher temperatures.

Fourthly, and by no means the least, this increase in speed is only temporary, disappearing in about three days. For best results the film should be exposed and developed immediately after being dried or after being taken from the ammonia fumes.

The third method of increasing the speed of motion picture films is by the use of mercury vapor.

This method is simplicity itself to do. It increases the speed of film, *including Kodachrome*, by 100 to 150%, that is, by one to one and a half stops. The table below indicates in Weston speeds this effect:

Film	Weston Speed to Tungsten Without Hypersensitization	Weston Speed to Tungsten with Hypersens.
Kodachrome, Type A	12	32
Cine-Kodak Safety 16mm.	8	24

Most important of all, it does not affect the color balance of Kodachrome film, which will give the same splendid rendering of color both with and without hypersensitizing. It has little effect on the grain size.

The method has its faults, admittedly. First, it takes time, whether or not the "hopping" is done before or after exposure. Secondly, the results are not permanent, wearing off after a time, and after the "hopping" has worn off, the film is sometimes slower than it was before.

The materials needed to hypersensitize several rolls of film are easily obtained. Any container, not metal, that may be made absolutely air tight—and preferably light tight as well—will do. The writer uses a small wooden glacé fruit box, of redwood, that has been given about six or seven coats of clear shellac, efficiently converting the porous wood to an airtight material. Pasteboard or cardboard boxes most emphatically will not do, as they are about as airtight as heavy cloth, through which air passes slowly, but completely. Metal is to be shunned as it will absorb some of the mercury fumes, which should go into the film, not onto the container. Glass fruit or pickle jars, of the type that have a glass or glass lined top and that seal with a rubber ring are excellent, but don't forget the rubber ring.*

* Very satisfactory and inexpensive jars to be used for mercury hypersensitization may be purchased in a variety of sizes at wholesale hotel supply dealers. They are crockery pickle jars, with cover, glazed both inside and out. A gallon jar costs about thirty cents.

The actual hypersensitizing material itself may be purchased at most drug stores. It is common metallic mercury. Fifteen cents worth is enough, and will last almost indefinitely. Some writers on hypersensitizing film have suggested that mercury amalgam may also be used. This is, of course, quite true, but the writer's experience has been that the ordinary metallic mercury does the job beautifully, is usually cheaper, and much more easily obtained. It is not necessary to get special mercury. Nothing is gained by having two or three more expensive distillations gone through to purify the mercury. The ordinary grade is perfect.

The last item on the equipment list is something to keep the mercury apart from the film. The writer uses a special small container for the mercury, in the shape of a small porcelain nut dish he took from the wife's China closet. The reader's ingenuity may be called into play here to devise his own instrument. The essential thing is to allow the vapor evaporating from the mercury free access to the film, while keeping the liquid mercury separate.

The method: First, having prepared the container, and the mercury being ready and at hand, take the film out of the cardboard box in which it is packed. Also remove it from the metal can, but *not* from the metal reel. Do not take the paper band off the film. Users of Du Pont film should remove the tinfoil, the metal light protective band, and stick the loose end of the film down with scotch or adhesive tape. All that now remains is the film, rolled on its reel, and held from unwinding by a paper band or scotch or adhesive tape. All these actions may be done in ordinary room illumination, though the darker the better, particularly with Du Pont film. It is not necessary in any case to do it in total darkness.

Next place the film in the container, place the mercury in the container, so that it is open to the interior of the container but cannot touch the film (Figure 1), clap the cover on, and seal the cover down tightly with scotch or adhesive tape. Make doubly sure that the container is air tight (Figure 2).

Then, place the entire affair, container and all, on a shelf, in a room at ordinary room temperature, 72°. Leave it there for one week for Kodachrome at the least, nine days at most. This same period may be used safely with most films in the slow to moderately fast class, but caution should be used in subjecting extremely fast films to more than a week's "hopping." More than this *may* cause fog, since the fog level is usually fairly high in fast films, and overlong exposure to the mercury will raise the fog, eventually completely fogging the film.

After the time has passed, expose and develop the film as soon as possible. There is good justification for believing the effects of mercury hypersensitizing will last for some time, perhaps even two weeks or more. However, the writer has *thought* that his films which were used and developed soonest after "hopping" gave him the greatest film speed.* The difference has been slight between the various rolls. But then he has courage enough to admit that he was frankly afraid to risk expensive Kodachrome in experiments to determine just how long the extra speed would stay in the film. It was enough to risk nine dollars worth of Kodachrome for night shots of the '39 Fair by "hopping" it with mercury when all the literature then in print said flatly that there was no known method

* The latest data indicates that on Kodachrome almost all of the increased sensitivity is lost within ten days after the film has been removed from the mercury vapor.

Figure 1

Figure 2

by which the speed of Kodachrome might be increased by the amateur.

So, use the "hopped" film as soon as possible and get it developed promptly. It can't hurt to get it done soon, and the effect may be lost by delay.

The principle by which this effect is obtained is not thoroughly understood. It has been known for a long time that mercury will intensify an underexposed and thin negative image, and that mercury will fog film badly if allowed to touch it. But recently, through the efforts of H. Duerr and F. Dersch of the Agfa Ansco Research Laboratories in Binghampton, N. Y., it was discovered that mercury vapor, the gas that rises from metallic mercury in the same way that water vapor rises from water, will materially increase the speed of photographic emulsions when allowed to affect them over a period of time. This discovery led to the publication about two years ago of the above outlined method of "hopping" with mercury. But no mention was made of using it on color films.

The actual mechanics of speed in photographic films is itself not as thoroughly understood as chemists would like it to be. In general, however, it is thought that the individual crystal of silver bromide, the material that is actually affected by the light, is sensitive only in spots, called sensitivity specks. It is also thought that when the film is exposed to mercury vapor, some of the mercury is absorbed by these specks, that is, the mercury clings to the speck, and in some way renders the speck and the crystal on which it is located more sensitive to light and to the later development into an image.

Now mercury that has once evaporated, like water, and been absorbed onto a sensitivity speck on a silver bromide crystal, can evaporate again and go out of the film leaving it slow again. That is the reason why the speed is not permanent. Just how soon this departure from the film takes place is not known, but under conditions of extreme cold—at, for example, zero degrees Fahrenheit —it may be delayed quite a good deal. Tests on black and white material have indicated that the film will retain a good portion of its extra speed for as much as two months at this temperature.

Therefore, it may be possible to store hypersensitized film in the freezing compartment of the home refrigerator, and use it when needed. However, be sure to let the film take a day to come up to room temperature, or water vapor may be deposited on the cold film in the camera, effectually ruining everything.

It is also possible to hypersensitize the film after the picture has been taken

with equal results. On black and white film, the maximum effect is obtained by "hopping" both before and after, though the color film treated in this way that the writer has seen is not appreciably faster than that treated as outlined above.

Unfortunately, the effect of this treatment on various types of black and white film is not always the same. Some films "hop up" better than others. In general, the maximum effect will be obtained with the slow films, with less gain on faster emulsions.

Once the effect is determined for a particular film, the results may be expected to be quite uniform provided that exactly the same technique is maintained each time. Some increase in effect may be noticed after the particular "hopping" chamber has been used for some time, particularly if made of wood. The writer gets about 25% more effect out of his chamber now that mercury has been in it for over a year. The pores of the wood are saturated with mercury vapor, so that all the vapor goes on the film.

It is not necessary to unwind the film from the roll. The vapor will find its way into every nook and cranny, even down to the last inside turn on the roll. The only effect of unrolling the film, or putting it on a special reel so that the emulsion surface is open to the vapor is to speed the action somewhat. With the emulsion completely exposed hypersensitization will take place in 72 hours. It is far easier to leave the film rolled up and wait a little longer for the same effect.

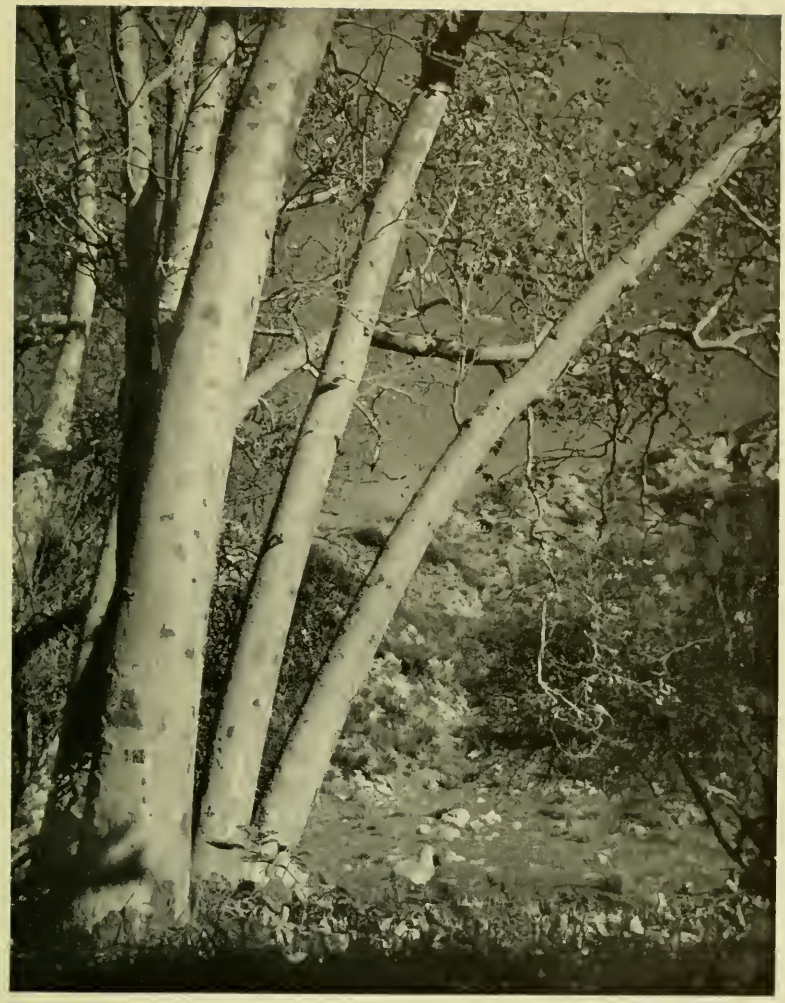
By removing the black tape around the outside of film magazines, and following the technique outlined above, users of magazine loading cameras will get the same effect on their films. It is not necessary to take the film out of the magazines.

The one large bugaboo of this method is metal that is unpainted. As little as possible of unpainted metal should be allowed to remain inside the hypersensitizing chamber. This metal will absorb the mercury, greatly lengthening the time required for "hopping."

Films of theatrical performances in particular will benefit by the use of hypersensitization. Usual theatre illumination allows good exposure at F:1.9 at 16 frames on Kodachrome, but by using the "hopping" technique owners of cameras equipped with F:2.7 lenses, or users of telephoto lenses of that speed will be able to get good exposure.

The same is true of sports pictures, where slow motion studies are frequently expected under very poor lighting. Basketball in particular demands all that is obtainable in speed, since the level of illumination of the usual basketball court, ample as it may be for seeing, is very low for photography.

The use to which this method probably will be put to most is in preparing the way for candid shots at home. Super XX hopped up will allow the taking of candid shots—with ordinary bright room illumination—with F:2.7 lenses with nice results. It is indeed surprising the quality that may be obtained in unsuspected portraits of people taken by this method. The average person will simply not believe that pictures may be taken indoors with ordinary illumination, and the camera owner may frequently take to his heart's content, his subject being secure in the knowledge "that it won't come out anyway—there's not enough light," when actually good exposure is being given. It is even possible to take pictures by candlelight with "hopped" film and F:1.5 lenses.



"Canyon" *John Gibbs Holyoke, Pasadena, Calif.*

First Award—Advanced Class

■ This picture conveys the feeling of brilliant sunlight most successfully and is made exciting and dramatic by the thrusting tree forms. It is most illuminating to observe how subtly the thrust of these strong lines is kept under control. A bit of foliage does the trick for the one on the right, while small touches of shadow take care of all others except the largest trunk. The largest trunk is the only one along which the eye might slip out of the picture. This also could be brought firmly under control by dodging in a bit of shadow which would conform to the shadows which appear on the trunks on either side. It is unfortunate that the bushes in the lower right are sort of messy and for that reason out of keeping with the clean sharp lines of the tree trunks. Because the trees incline to the right we need something in the lower right to act as support for the trees. Ideally this should be something with rather clean cut outlines and a fairly dark tone so that it would come forward, and by doing so, help to set the hillside in the distance back.

Data: 2¼ x 2¼" Voigtlander Superb; F:3.5 Heliar; Kodak Super XX in Kodak DK-20; 16 x 20" print on Agfa Brovira glossy.

"The Happy One"
Francis Wu,
Hong Kong, China

Second Award

Advanced Class

■ Mr. Wu has caught a marvelously revealing expression here, so that this portrait holds our interest most successfully. We have noticed a tendency on the part of many beginners to place a head in the picture space almost entirely by reference to the eyes. That is, they get the eyes to one side or the other of the center, depending on which way the head is turned, and let it go at that. Applied to this picture such spacing would mean that enough would have to be added to the left to move the near eye to the right of center. We think that most will agree that such procedure would leave much redundant space at the left. Such spacing overlooks the fact that all parts of the picture play a part in determining the most desirable position. In this case the headdress is particularly important. The fact that there is considerably more space to the left of the headdress than to the right takes care of the directional movement set up by the eyes.

Data: Graflex; 1/300th sec. at F:8, on Kodak Super XX in Kodak DK-50; outdoors on rainy day; 11 x 14" bromide print.

"Power"
Richard Rundle,
San Francisco, Calif.

Third Award

Advanced Class

■ Mr. Rundle has done an exceptionally good job of lighting, exposure and development here so that the modelling is very fine indeed. The point which will probably be brought into question by many, concerns the inclusion of part of the face. Does the face offer too much competition for the arm which is intended to be the principal point of interest? There will surely be divergence of opinion here. Our own feeling is that the face is kept sufficiently under control by being held down in tone, and by reason of the fact that it looks toward the arm. A more drastic trimming brings up the very real danger of presenting the arm in such a disembodied fashion that it will appear unpleasant, and the same danger exists with respect to trimming the head away at the neck. Try such trimmings and the effect will be readily apparent. It is possible, however, to achieve a version which would meet the above objection and largely avoid the danger mentioned. If we tilt the print about 15 or 20 degrees to the right so that the line of the upper arm runs diagonally from upper left toward lower right in steeper fashion than is now the case, we can then trim so that the lips are eliminated but the chin remains and so that the torso still reaches down to the base of the print. This presentation avoids the other difficulties but the arm appears inadequately supported in the picture space. On the whole we prefer the present version.

Data: 3¼ x 4¼" Graflex Series D; 6⅜" Kodak Anastigmat; 1/5th sec. at F:8 on Agfa S.S. Plenachrome in Kodak DK-76; 10½ x 11" print on Defender Velour Black I 22, in Defender 55D; Mortensen Powder and Abrasion tone.

Fourth Award

Advanced Class

"Earle C. Anthony"
Fred S. Herrington, A.R.P.S., San Francisco, Calif.

■ This picture gives us the impression of being a very excellent and natural likeness. It doesn't make a bit of difference whether it is that or not, so long as that is the impression conveyed. In addition Mr. Herrington has made good use of the curve of the hat brim and has achieved good roundness and third dimensional quality in the head. This last is particularly noticeable in the cigarette. Greatest weakness of the picture, quite obviously lies in the large areas of blocked up highlights in the white shirt. These are so strong that they definitely distract attention from the face. It is,of course, best to avoid white shirts whenever that is possible. When they must be used it helps a great deal to introduce a screen between the light and the shirt so that the strength of the light is cut down in that area and the scale of the subject correspondingly reduced.

Data: 3¼ x 4¼" Graflex Series D; 6¼" Tessar; 1/5th sec. at F:6.3, on Kodak Panatomic X in Kodak DK-76; outdoors in shade with open sky overhead; 10¼ x 13¼" print on Gevaluxe in GD-61.

Fifth Award

Advanced Class

"Jean"
Robert H. Griffith, Chicago, Ill.

■ Ordinarily this would be just about the last shirt in the world that one would select for photographic purposes. But, as we so frequently discover in picture-making, there are always exceptions to the rule. In this case the extremely violent shirt plays an important part in establishing the bright and care free feeling of the out-of-doors that is so well brought out in this picture. The delicate and graceful wisp of grass is a most happy device. It adds one more suggestion of the out-of-doors and contrasts most effectively with the heavy vertical lines of the shirt. Contrasts of all kinds, of texture, tone, line, mass; of hard and soft, sharp and dull, strong and delicate; of ideas and emotions, etc., etc., are among the most useful of all picture-making devices. The trick, of course, is to select just the right sort of contrast for the given picture so that it will build up the central theme and add to the interest value of the picture. It seems to us that the flesh values are just a little too light. Not because of faulty printing but because these areas are rendered too strongly in the negative. Most probably this is due to using panchromatic material with a filter.

Data: 11 x 14" chlorobromide print.

"River Poesy" — *Louis Schuck, New York, N. Y.*

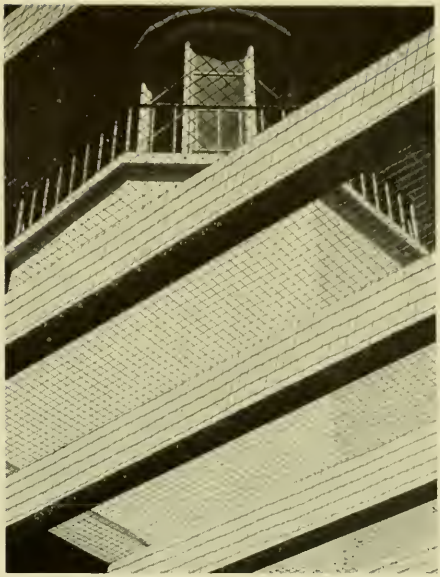
First Award—Amateur Class

■ This picture appeals to us as an exceptionally fine night shot for several reasons. It gets away from the harsh "soot and whitewash" of most night pictures, and it is a good arrangement of quite interesting material. In all probability this picture was either shot at dusk just as the lights came on or is the result of a double exposure. In the second case the first exposure would be made a little before dark, and would be sufficient to give a slightly underexposed image of the landscape. The second exposure made after the lights came on would be only to record the lights and nothing more. The fact that the boat is a moving object would not necessarily prevent the adoption of this technique, for the second exposure records only the lights. It would, however, be necessary to fake-in the lights on the boat for it would be gone by the time the second exposure was made. In either event it seems to us that one or the other of these two techniques are almost essential for pictorially satisfying night photography when any extensive area is shown in the picture. Close-ups, of course, do not present the same problems. Only by such means can the extremely long scale of the usual night subject be brought within the scope of the photographic medium, and a result reasonably close to what the eye sees produced. If we imagine this picture rendered as is the usual night shot, it immediately becomes apparent that if that were the case virtually all of its charming qualities would disappear. Obviously the purpose of the enlarged film positive and negative is to permit of retouching which could not be carried out on the original negative because of its small size. There were apparently some awkward looking poles protruding upward in the left foreground, the reflections beneath and beyond the central span were toned down and the smoke from the boat brought out more strongly. This work is evident upon close inspection but is not apparent at a normal viewing distance.

Data: Contax; enlarged film transparency and negative; 11 x 14" print by contact on Defender Artona.

Second Award

Amateur Class



"Pattern"
Richard Wagner,
San Francisco, Calif.

■ Mr. Wagner has found an interesting though extremely violent pattern here and has photographed it very well. In fact it is the violence of the pattern, contrasted with the preciseness of the wire, which makes the picture hold our attention. Notice that, despite the violence of the diagonal lines, the tower at the top has sufficient pulling power to keep the eye within the picture space. The patch of light tone in the upper left does not help and it would be a simple matter to dodge this in until it blended with the dark tone on either side. It is an interesting question as to whether the picture would be helped by a lighter sky. Admittedly a lighter sky would make the nature of the material more readily recognizable and would also give greater strength to the tower and thus assist in the task of controlling the strong diagonals. If the sky were too light the picture would become unbearably jumpy, but it is our guess that a slightly lighter sky tone would help.

Data: 3¼ x 4¼" Graflex Series D; Agfa Superpan Press with G filter in Kodak DK-20; 11 x 14" print on Defender T glossy in Defender 55D.

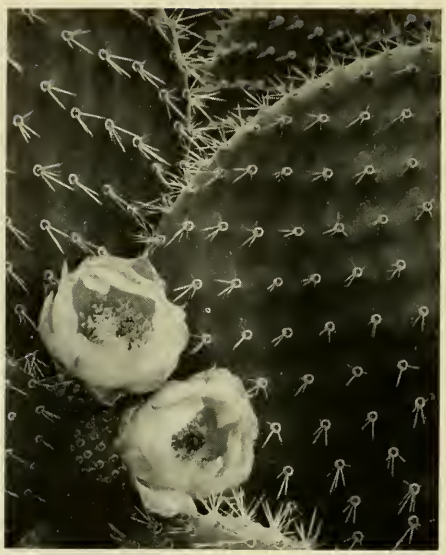
Third Award

Amateur Class

"Storm King"
Jack Cannon,
San Francisco, Calif.

■ It is interesting and instructive to notice how very differently various photographers handle quite similar subject matter. That is as it should be, for it is the function of the artist to record what he "sees" in his material; that is what he finds significant and emotionally effective. The artistic process then lies in bringing out what is "seen" fully up to the level of consciousness, so that it can be vividly visualized and organized into a picture. This is the process which Edward Weston has in mind when he emphasizes the importance of seeing the completed picture on the groundglass. Once that is done the rest is mere technique. Let us compare this picture with a photograph of a similar subject by Edward Weston, (see Frontispiece, January 1939), not to evaluate one against the other but to observe the difference in approach. Both are "straight" photographs, so that rather overworked bugaboo is dispensed with, but the emotional emphasis is very different. Mr. Weston presents an intimate and searching portrait, vividly revealing certain unique characteristics of the Juniper tree. Mr. Cannon permits the environment to play an important part, and is principally concerned with the poetic aspects of the tree's struggle for survival. Both men are obviously acutely aware of the tree as a living, struggling thing. Mr. Weston is intrigued by

(Continued on page 573)



"Pattern in Points"
Jack Wright,
San Jose, Calif.

Fourth Award

Amateur Class

■ It seems to us that Mr. Wright has been quite successful in achieving what might be called the main objective in plant photography, namely, to reveal all of the essential characteristics of a plant in as simplified a form as possible. The general plan here is quite good but it is possible to imagine slight adjustments which might increase the effectiveness of the picture. We feel that the two blossoms are now too equal in strength. If one, preferably the lower could have been turned away from the camera it would then assume a secondary position. We might even imagine the picture with the lower blossom eliminated and this lower area filled in with a curving leaf form, moving upward from lower left and downward toward lower right, which would echo the curves of the larger leaves above. This would also get away from the present feeling that the blossoms as a group are placed just a little too low in the picture space. The definition throughout is not all that it should be, apparently because of great enlargement from a small portion of the negative, or to slight movement during the long exposure.

Data: 4 x 5″ Speed Graphic; ½ sec. at F:32, on Agfa Superpan Press; 11 x 14″ print on Kodak Kodabrom G-3.

"Primitive Transportation"
Dr. J. M. Dowis,
Dallas, Texas

Fifth Award

Amateur Class

■ As entertainment this picture is swell, and it earns a place because of its amusing qualities in spite of rather pronounced technical shortcomings. The legs and feet do not stand out from the background, as they should, because of lack of contrast. Consequently they are harder to see than they should be and the picture is lacking in depth. Greater depth of field, which would bring the further foot into focus but let the background remain diffused, would also help to achieve the desired depth and separation.

Data: 4 x 5″ Speed Graphic; 13.5 cm. Zeiss Tessar; 1/100th sec. at F:11 at 2 p.m. on sunny day; Agfa Triple S Pan, developed 10 mins. in Kodak D-76 and 12 mins. in Edwal 12; 11 x 14″ print on Kodak Vitava Opal H in Edwal 102; Sulphide toned and varnished.

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won points for their club in the Advanced Class: Richard Rundle, for the California Camera Club; Fred S. Herrington, A.R.P.S., for the E.P.I.C. Pool; Robert H. Griffith, for the Fort Dearborn Camera Club; and John Gibbs Holyoke, for the Pasadena "Y" Camera Club.

The following won points for their club in the Amateur Class: Jack Cannon and Jack Wright, for the California Camera Club; Dr. J. M. Dowis, for the Dallas Pictorialists; Louis Schuck, for the Miniature Camera Club of New York; and Richard Wagner, for the Photographic Society of San Francisco.

Contributing Clubs

Bloomington Art Association (Bloomington, Illinois)
California Camera Club (San Francisco, California)
Dallas Pictorialists (Dallas, Texas)
Detroit Camera Club (Detroit, Michigan)
E. P. I. C. Pool
Florida Camera Club (Tampa, Florida)
Fort Dearborn Camera Club (Chicago, Illinois)
Grays Harbor Camera Club (Aberdeen, Washington)
Miniature Camera Club of New York (New York City)
Missoula Camera Club (Missoula, Montana)
Oakland Camera Club (Oakland, California)
Pasadena "Y" Camera Club (California)
Photographic Society of Philadelphia
Photographic Society of San Francisco
Portage Camera Club (Akron, Ohio)
Queen City Pictorialists (Cincinnati, Ohio)
Salt Lake Camera Club (Salt Lake City)
San Jose Camera Club (San Jose, California)
Signa Phi Nothing (Sacramento, California)

STANDING OF CLUBS

Large Clubs—Advanced Class

California Camera Club	14
Photographic Society of Philadelphia	5
Brooklyn Institute of Arts and Sciences	3
Manhattan Camera Club	3
Fort Dearborn Camera Club	2
Fotoklub Ljubljana	2

Small Clubs—Advanced Class

Pasadena "Y" Camera Club	59
The Pack Rats	19
E.P.I.C. Pool	11
Signa Phi Nothing	9
Aremac Camera Club	4
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2

Large Clubs—Amateur Class

Miniature Camera Club of New York	29
California Camera Club	28
Detroit Camera Club	18
Photographic Society of San Francisco	14
Amherst Camera Club	9
Manhattan Camera Club	5
Camera Club of Oakland	4
Camera Club of Richmond	2
Green Briar Camera Club	1
Shanghai Camera Club	1

Small Clubs—Amateur Class

Dallas Pictorialists	16
Camera Club of San Pedro	6
Modesto Camera Club	5
San Marino Camera Club	5
Marin Camera Club	2

(Continued from page 571)

the textures (character lines in his portrait), by the sinuosity of the curving forms, and has taken great care to achieve a finely adjusted balance of light and dark. Mr. Cannon has played up the atmospheric qualities of his scene in order to create the somber, threatening mood of approaching storm. All of this leads to certain conclusions. The photographer is absolutely free to adopt whatever approach he chooses. No one can legitimately say that one approach is always superior to another, though such criticism may be justified in specific instances. It is important that the photographer's approach be "honest." That is that it be based upon his sincere reactions to the subject matter. And finally, that it is of the utmost importance that the photographer fully realize exactly what he is trying to do before clicking the shutter.

Data: 2¼ x 3¼" Graflex Series D; 1/30th sec. at F:16, on Kodak Panatomic X with G filter; 11 x 14" print on Defender Velour Black I in Kodak D-72; Agfa direct sepia toner.

(Continued from page 556)

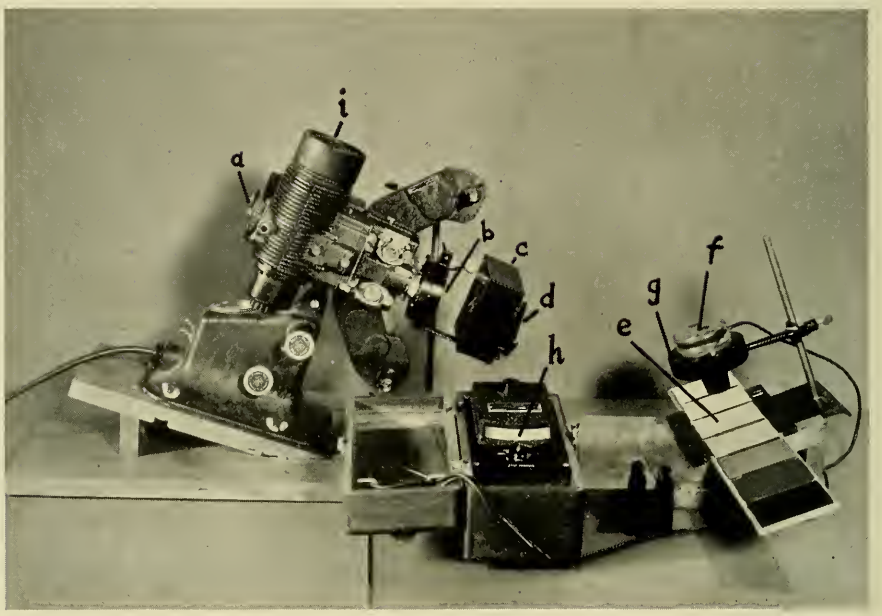


Figure 3. Reflection Densitometer

Reflection Determinations on 253 Standard Colors

The color chips in the Book of Color are ¾"x⅞". This size is too small to be read by any practical meter set-up. An instrument was designed so that the relative reflection could be read from 2½"x3" standard Munsell cards. Any of the standards may be obtained in sizes up to 9"x12". The colors are identical to the smaller chips in the Book of Color.

Figure 3 shows the instrument with seven color cards in position to be read. This consists of:

a. Lamp (Bell and Howell m.p. projector)
b. Lens, for projecting image on (e)
c. Water cell, to remove heat rays from beam (Bausch and Lomb)
d. Filter holder (B and L)
e. Holder, for standard colors. Seven colors can be snapped in position for rapid comparison. Colors are readily removable from frames.
f. Photometer head, recording reflected light from standard colors (Electrocell No. 755)
g. Collimator, to prevent unwanted light from reaching sensitive cell
h. Galvanometer, recording in footcandles (Photrix, Model A)
i. Rheostat, to control lamp voltage

The 16 mm. projector provides an ideal source of intense and easily controlled illumination. This differs from conventional photometers utilizing spheres[5] and several lamps to diffusely illuminate the sample. The illumination in this case is direct and at approximately 45°. Since the primary purpose is to establish the relative reflectances of a large number of flat, diffuse, colored surfaces, the type of construction has several advantages, such as, intense brilliance and rapidity of operation. On account of the intensity of the projected light it was necessary to place a water cooling cell in the projected beam. This protects the gelatine filters, the more or less delicate colors, and the photo-cell itself is shielded from undue heat and consequent errors.

TABLE (I)

A Comparison of Munsell Visual Reflection Percentages and the Meter Reflectometer (Without Correction Filter)

Neutral Values	Visual % Reflection[2],[6]	Photrix Photometer % Reflection (3200°K)
N/9.6	87.44	89.9
N/9.4	82.20	84.2
N/9	72.80	71.6
N/8	53.60	56.7
N/7	38.90	43.2
N/6	27.30	29.9
N/5	18.00	18.7
N/4	11.05	12.9
N/3	5.95	7.01
N/2	2.90	3.29
N/1	1.12	1.79

[5] F. A. Steele. New Jersey Zinc Co. Opacimeter. Paper Trade Journal, October 24, 1935.

[6] Book of Color, p. 42.

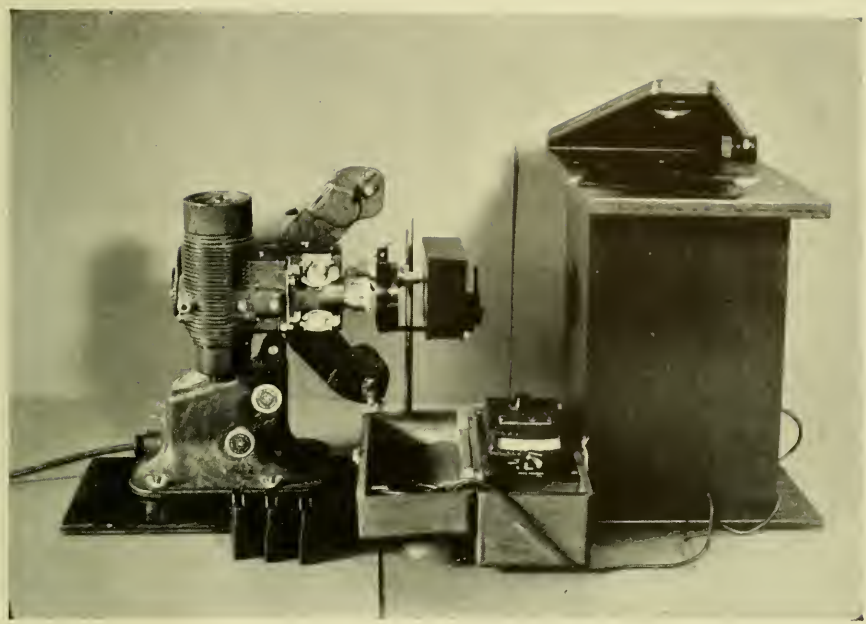


Figure 4. Transmission Densitometer

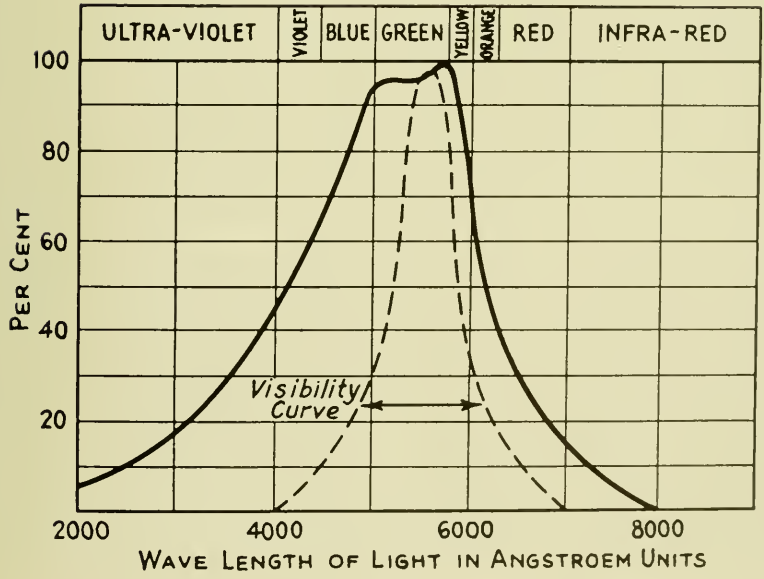


Figure 5. Visibility Curve compared to spectral sensitivity of photoelectric cell.

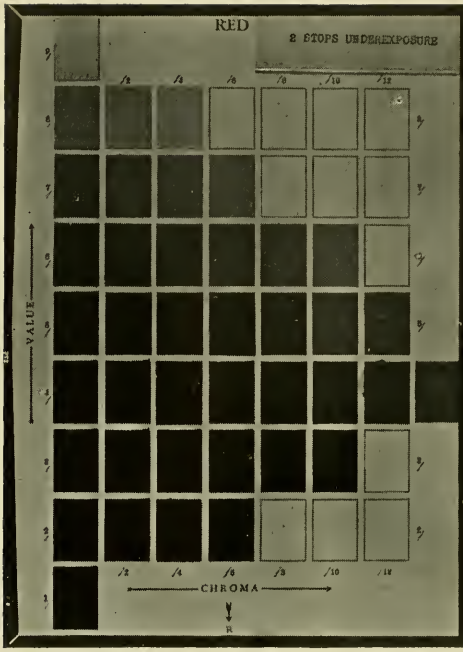


Figure 6. Red (R)*
2 Stops Underexposure

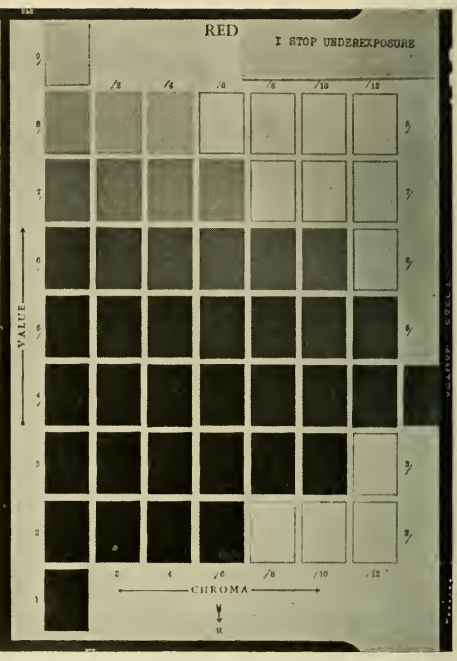


Figure 7. Red (R)
1 Stop Underexposure

The three color filters used to determine the color co-efficients were Wratten 47C5, 25 and 58—the standard tri-color set. Since it was not possible to obtain a reasonably transparent blue filter which completely excluded deep red and infra-red, the red and blue filter were placed together and their combined reading was subtracted from the blue reading. Gelatine filters always pass some infra-red and this was the method used to extract a large part of this unwanted radiation from the blue filter. The infra-red radiation was of less **relative** importance with the other filters, which needed no correction for practical purposes.

The Electrocell element is more sensitive to both the red and violet end of the spectrum than is the human eye, as shown in Figure 5. A special green filter can be obtained which converts the Electrocell approximately to the same sensitivity as the eye. This was not used because a meter so fitted is considerably less responsive and it was desirable to maintain high sensitivity on account of the dark filters and small area of cell used. The color filter readings were made on the 253 selected standards, so that a comparison could later be made with the accuracy of rendition of the processed Kodachrome, using the same meter and filters. It was not required of the color coefficients to match visual color response—simply that the reflection and transmission were equivalent, or as close as possible, in arbitrary terms.

Photographing the Colors

Photographing the colors presented a problem. If each of the 253 colors were photographed separately, at 5 different exposures, it would mean taking 1265 pictures, which was out of the question. If the 2½″ by 3″ cards were photographed in groups of 25 or 30, arranged according to their hues in the Book of Color, the area would be about 8 square feet. It is difficult to evenly illuminate an area of this size. For this reason it was decided to photograph, according to hue, the 10 main hues of the Book of Color covering an area of 6x8 inches.

This required taking 50 photographs. The ten hues were recorded as Normal, One Stop Overexposure, Two Stops Overexposure, One Stop Underexposure, and Two Stops Underexposure. The exposures were varied by adjusting the diaphragm opening. A slide rheostat, voltmeter, and Eastman color temperature meter were used to control two 3200°K Mazda lamps. The lamps in both reflectors were changed several times in order to maintain uniformity in both intensity and color temperature throughout the series of exposures.

Figures 6, 7, 8, 10 and 11 are monochrome reproductions of the hue Red made at the five indicated exposures. Figure 9, Yellow-Red, Normal, is also included. The exposures were equivalent to f:32, f:22, f:16, f:11 and f:8 at 1/5 second.

Therefore the standard for "Normal" ex-

* The printing on the Munsell page (Figs. 6 to 11 inclusive) is **not** in black but in grey-buff of about Value 5. The reader should therefore not use it to judge over and underexposure on the monochrome reproductions.

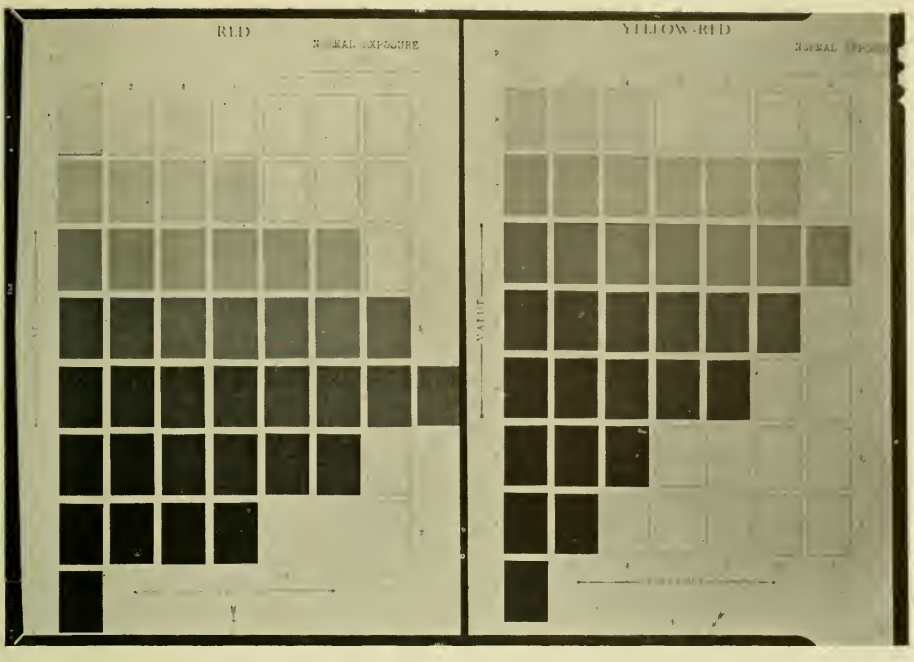


Figure 8. Red (R)
Normal Exposure

Figure 9. Yellow-Red (YR)
Normal Exposure

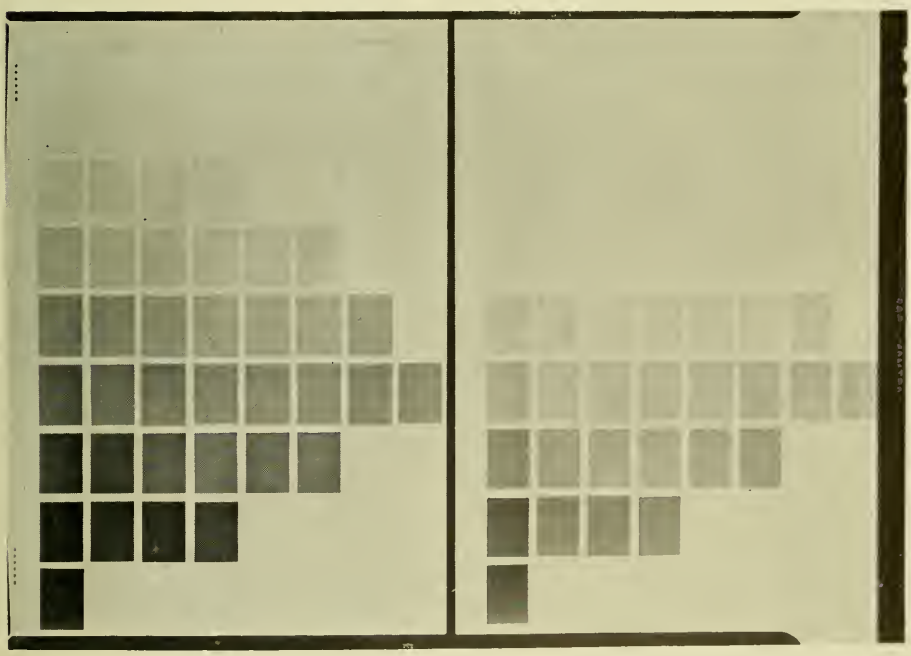


Figure 10. Red (R)
1 Stop Overexposure

Figure 11. Red (R)
2 Stops Overexposure

TABLE (III)

The Relationship between "Normal" and Other Exposures in Per Cent Transmission, as Compared with Per Cent Reflection.
(N = Neutral — R = Red)

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
	% Reflection	% Transmission (see footnote page 552)				
Munsell Notation	Munsell Color Cards 2½ x 3″ See Fig. 3-e	Normal Exposure (Fig. 8)	1 Stop Over-exposed (Fig. 10)	2 Stops Over-exposed (Fig. 11)	1 Stop Under-exposed (Fig. 7)	2 Stops Under-exposed (Fig. 6)
N/9	71.6	63.6	89.3	99.5	32.8	13.0
N/8	56.7	43.6	79.4	95.5	18.6	6.84
N/7	43.2	31.2	66.8	90.5	10.0	4.05
N/6	29.9	19.7	50.4	84.1	5.60	2.34
N/5	18.7	7.26	29.9	64.3	2.42	1.09
N/4	12.9	4.19	17.4	47.0	1.41	.75
N/3	7.01	1.54	6.12	22.6	.69	.51
N/2	3.29	.76	2.33	8.89	.54	.45
N/1	1.79	.63	1.58	5.81	.49	.45
R8/2	59.3	54.8	78.6	97.0	20.6	8.31
R8/4	61.6	60.0	80.4	97.5	21.9	9.51
R7/2	46.6	40.3	67.0	92.6	12.7	5.30
R7/4	47.6	47.7	72.0	94.7	15.6	6.82
R7/6	48.7	44.9	73.3	94.7	17.3	7.52
R6/2	33.0	27.9	54.4	87.0	8.07	3.41
R6/4	35.8	35.4	60.5	88.6	9.80	4.58
R6/6	37.7	36.6	63.4	89.5	12.3	5.51
R6/8	38.6	36.6	64.0	89.5	13.0	6.13
R6/10	39.6	36.6	61.6	88.0	14.4	7.63
R5/2	21.6	14.4	34.2	69.7	3.86	1.64
R5/4	23.4	19.8	39.6	75.0	5.70	2.53
R5/6	24.4	22.2	44.6	74.7	7.08	3.52
R5/8	26.8	24.2	43.3	72.5	9.57	4.61
R5/10	31.1	26.6	45.2	72.5	11.9	6.62
R5/12	29.9	24.7	38.5	65.7	12.0	6.31
R4/2	13.2	8.53	20.7	59.1	2.25	1.07
R4/4	15.3	11.0	26.7	62.0	2.98	1.37
R4/6	16.0	12.9	29.8	60.5	4.49	1.93
R4/8	18.7	16.5	32.2	57.6	6.65	3.00
R4/10	21.0	18.1	32.2	53.6	8.07	4.25
R4/12	22.4	18.7	30.1	50.3	9.23	4.61
R4/14	23.3	19.8	31.3	48.0	9.68	5.22
R3/2	7.94	4.34	12.0	37.4	1.20	.70
R3/4	9.36	6.86	17.6	41.8	1.86	.92
R3/6	11.5	9.34	22.6	47.7	3.21	1.38
R3/8	11.3	10.0	21.6	43.2	3.54	1.44
R3/10	11.9	11.0	21.6	39.0	4.45	1.90
R2/2	4.74	2.65	6.64	23.1	.79	.55
R2/4	5.16	3.16	9.65	23.5	.88	.57
R2/6	5.98	3.91	10.2	28.4	1.14	.67

posure was taken as f:16 at 1/5 second. The Munsell colors for Neutral Gray and Red under this intensity of illumination reflected as follows:

TABLE (II)

Magnesium Oxide					
N/9	—	1584	R5/4	—	518
N/8	—	1255	R5/6	—	544
N/7	—	959	R5/8	—	594
N/6	—	665	R5/10	—	688
N/5	—	414	R5/12	—	662
N/4	—	286	R4/2	—	292
N/3	—	155	R4/4	—	334
N/2	—	73.0	R4/6	—	354
N/1	—	39.6	R4/8	—	413
R8/2	—	1313	R4/10	—	465
R8/4	—	1365	R4/12	—	496
R7/2	—	1031	R4/14	—	516
R7/4	—	1052	R3/2	—	175
R7/6	—	1080	R3/4	—	207
R6/2	—	730	R3/6	—	255
R6/4	—	792	R3/8	—	250
R6/6	—	834	R3/10	—	264
R6/8	—	855	R2/2	—	105
R6/10	—	875	R2/4	—	114
			R2/6	—	132

(To be concluded in December issue.)

Transmission Determinations of the Photographed Color Charts

In the tansmission densitometer (Figure 4), exactly the same light source, filters, watercell, photocell, etc., were used as in the reflection densitometer. The paper holder and collimator were replaced by a housing holding a mirror* at 45° reflecting the light beam to a ground glass diffusion screen. Over this screen a thin plate was placed with an opening slightly smaller than the reproduced color rectangles. Through this opening light passed to the color patches of the Kodachrome and was recorded by the meter. The Electrocell was removably attached to a hinged panel which enabled the film to be adjusted to any position quickly and accurately.

When photographed at f:16 and 1/5 second, or equivalent exposure (under illumination of Table II) these colors will reproduce "Normal." (See col. 3, Table III.)

* A special top-surfaced mirror made by Panchro Mirrors, Inc. of Los Angeles. Superior to silver or aluminum in spectral fidelity.

Club Notes

New Clubs

The San Francisco Camera Club Council recently held an organization meeting with representatives from the following eight clubs attending: California Camera Club, Camera Circle, State Employees Camera Club, Pacific Pictorialists, Japanese Miniature Camera Club, Y.M.C.A. Camera Club, Retlaw Camera Club, and the Emporium Camera Club. A committee was appointed to draw up a constitution and by-laws and Mr. Herbert Schmulian was selected as temporary president, with Robert Korn acting as secretary. Further information regarding the council can be obtained by writing Mr. Korn, c/o the Retlaw Camera Club, 3859 24th St., San Francisco.

The F.S. Club of Salinas, California, was organized during June 1940. Meetings are held the first and third Mondays of each month. Correspondence with other clubs will be welcome. Address L. E. Shannon, Salinas, Calif.

The 1/100,000 of a Second Camera Club, Box 55, Lansing, Mich., is a unique group organized among photographic enthusiasts who like to take fast action pictures. The group owns two high-speed super-flash outfits and has a 30-print traveling exhibit of prints which were all exposed between 1/5000 and 1/100,000 of a second, which they will be pleased to loan to other groups. The club will be glad to make arrangements for lectures and demonstrations to other photographic groups and will welcome correspondence. Address the club director, Mr. Floyd Brown at the above address.

The Movie Crafters, of Oakland, Calif., is a new group organized among cine photographers in the East Bay Area. Mr. Burlwell Derry was elected president to guide the group during the coming year. Interested cinefans can write Mrs. C. L. Brooks, Secretary, 363 Orange Street, Oakland, Calif.

The Marina Camera Club, of San Francisco, Calif., has just been organized and is holding meetings at the Funston Playground Clubhouse, Chestnut Street, between Laguna and Webster. Photographers interested in the new group can correspond with Ulma Hixson, Secretary Pro Tem, 3138 Franklin Street.

Camera enthusiasts of Tracy, Calif., recently met to organize a camera club in that city. As yet no name has been selected for the group. The new club plans an active program with regular print competitions, print clinics, outings and other activities. The present plans also include the formation of a cinema section. For further information address the Secretary, Eva Wells, Tracy, Calif.

The Central California Council of Camera Clubs was recently organized into a permanent group after three monthly preliminary meetings. The following clubs are charter members: Palo Alto Camera Club, Santa Cruz Camera Club, San Jose Camera Club, Cameraderie Club, and Light and Shadow Club. Mr. Jack S. Garnett was elected President to guide the group during the coming year. Committees have been organized to form a Speakers Bureau and Print Show Interchange.

Announcements

The first announcement of honors conferred by the Photographic Society of America has just been released for publication:

HONORARY FELLOWS

William H. Jackson, New York City
Dr. C. E. K. Mees, Rochester, New York
Alfred Stieglitz, New York City

HONORARY MEMBERS

William A. Alcock, Brooklyn, New York
Louis Fleckenstein, Long Beach, California

FELLOWS

Edward Alenius, Basking Ridge, N. J.
Dr. John I. Crabtree, Rochester, New York
Adolf Fassbender, New York City
Frank R. Fraprie, Boston, Mass.
J. Ghislain Lootens, New York City
C. B. Neblette, Rochester, New York
Dr. D. J. Ruzicka, Jackson Heights, New York
Dr. Max Thorek, Chicago, Illinois
Dr. E. P. Wightman, Rochester, New York
William H. Zerbe, Richmond Hill, New York

ASSOCIATES

Hillary G. Bailey, Indianapolis, Indiana
Rowena Brownell, Providence, Rhode Island
Dr. David R. Craig, Washington, D. C.
Clare J. Crary, Warren, Pa.
H. Richardson Cremer, Upper Montclair, New Jersey
Eleanor Parke Custis, Washington, D. C.
Alfred A. De Lardi, Philadelphia, Pa.
Richard T. Dooner, Philadelphia, Pa.
John Forrest, Binghamton, New York
Paul Linwood Gittings, Houston, Texas
Arthur Hammond, Boston, Mass.
Nicholas Haz, New York, N. Y.
Franklin I. Jordan, Newton Highlands, Mass.
Dr. Theron W. Kilmer, New York, N. Y.
Sophie L. Lauffer, Massapequa, N. Y.
Don Loving, Evanston, Illinois
John W. McFarlane, Rochester, N. Y.
John P. Mudd, Philadelphia, Pa.
Fred P. Peel, Chester, Pa.
Valentino Sarra, Chicago, Illinois
Dr. Maximilian Toch, New York, N. Y.
E. V. Wenzell, Philadelphia, Pa.

The winners of the Western Amateur Camera Conclave Photographic Contest have just been announced. First prize of $100 was won by Victor Rundle of Oakland, Calif.; second award of $50 went to Dr. Irving B. Ellis of Piedmont, Calif., whose print also won the special award for the best photograph of Lake Merritt; third award of $25 went to N. Stillman of Berkeley, Calif. Honorable mentions were also awarded the following: Alva Tofanelli, Oakland; William J. Hone, Altadena; E. M. Merritt, Oakland; N. Stillman, Berkeley; Idella Johnston, Marysville, Calif. and Twila Langdon, Lewiston, Idaho. The special General Electric award was won by Sam Woody, Oakland. The members of the jury were P. Douglas Anderson, F.R.P.S. and George Allen Young.

Ira W. Martin, Salon Director, of the Pictorial Photographers of America, has changed his post office address as follows: Station Y, P.O. Box 48, New York City.

John Skara, widely known as one of the outstanding pictorial photographers in Chicago and the Middle West, died suddenly of a heart attack on September 26th. His loss is felt keenly by his associates in the Chicago Camera Club, who have long esteemed him as a congenial friend and brilliant pictorialist. His work won many honors in Salons all over the world and he was awarded the Fellowship of the Royal Photographic Society. During December there will be a memorial exhibition of his prints in the Club's quarters at 137 N. Wabash Avenue, Chicago.

Exhibitions

The Southwest Cactus Growers will present an exhibition of photographs of flowers and plants at the Manchester Playground, 8800 So. Hoover St., Los Angeles, Calif., November 9th to 11th, incl. Photographers are invited to enter prints. Details may be obtained from the Show Chairman, W. H. Abercrombie, Jr., 3813 Broadway, Huntington Park, Calif.

The Photographic Society of America's International Salon will open in Cleveland, Ohio, on October 25th, the day the Society convenes for its annual convention. The salon will be exhibited at the Cleveland Art Museum.

November showings of the 1940 Kodak Exhibit are as follows: Los Angeles, Calif., Oct. 29-Nov. 1, Biltmore Hotel; Hollywood, Calif., Nov. 3-4, Hollywood-Roosevelt Hotel; Long Beach, Calif., Nov. 8-9, Hilton Hotel; San Diego, Calif., Nov. 13-14, U. S. Grant Hotel; San Antonio, Texas, Nov. 21-22, The Gunter; Houston, Texas, Nov. 26-27, The Rice Hotel; Fort Worth, Texas, Dec. 1-2, Texas Hotel. Showings are also being arranged in Dallas, Oklahoma City and Tulsa. All dates are inclusive.

Two important photographic exhibits will be displayed in Berkeley, Calif., during the coming month. An exhibition of forty prints by Cedric Wright will be displayed from Oct. 13th to 25th, sponsored by the U. C. Camera Club. The exhibition will be on view in Room 301, Haviland Hall, University of California, from 3:00 to 5:00 P.M., daily except Saturday. From Nov. 1st to 15th, an exhibition of fifty prints by Edward Weston will be on view at the University Art Gallery, from 3:00 to 5:00 P.M., daily except Saturday. This exhibit will be jointly sponsored by the U. C. Camera Club and the University Art Department.

Photographic Instruction

Roland Calder, popular East Bay instructor in photography, is now affiliated with the Academy of Modern Design, 478 Santa Clara Ave., Oakland, Calif. Under Mr. Calder's direction, the Academy opened a full and part time school of photography, on October 15th. The school has well equipped darkrooms and studio and the entire faculty will be available to aid students in photography.

Photographers in Honolulu will again have an opportunity to study under John P. O'Callaghan, whose years of experience in the photographic section of the Air Corp, have made him an ideal instructor. The course will include ten meetings, five classroom periods and five picture-taking field trips. Complete information regarding the classes is available from Mr. John P. O'Callaghan, 734-A Ocean View Drive, Honolulu, T. H.

A school for beginners in photography is now being conducted by the Los Angeles Camera Club, 2504 W. Seventh Street, Los Angeles, Calif. Instruction began September 30th and will continue for 12 weeks. Non-members will be welcome. Further details may be obtained from the club at the above address.

The Orange Camera Club, 1 South Clinton Street, East Orange, N.J., is now conducting a series of educational lectures on Thursday evenings at 8:00 o'clock. They are open to the public with a charge of $1.00 per lecture. An outline of the lectures and further details may be obtained from the above address.

P. Douglas Anderson, F.R.P.S., San Francisco's famous photographic instructor will conduct a print clinic at the DeYoung Museum on November 23rd. Any photographer is invited to submit prints, which should be left at the DeYoung Museum before November 16th.

The Miniature Camera Club of New York, 22 E. 38th Street, New York City, will continue their popular courses in photography during the coming season. The courses are open to members and some qualified non-members. No more than six to twelve pupils are permitted in a class, to insure individual attention for each student. Instructors are: J. Ghislain Lootens, F.R.P.S., Robert Desme, and Carlyle F. Trevelyan. Details on classes may be obtained from the above address.

Nicholas Ház, famous instructor, lecturer and photographer, will shortly begin a tour of the East and Middle-West during which he will conduct short courses in "Picture Visualization and Analysis." Camera clubs and other photographic groups who are interested in taking advantage of this opportunity to study under Mr. Ház should write immediately to Nicholas Ház, 30 Rockefeller Plaza, New York City. During the early part of 1941, Mr. Ház also intends to tour the South and Southeast. Complete details are available from the above address.

Notes and Comments

New Products

The Photo-Compact, introduced to the trade this month by the Photo-Compact Corp., 1472 Broadway, New York City, is a simple, compact, inexpensive device which combines the functions of an enlarger, a contact printer, safelights and workshelf. The Photo-Compact is completely collapsible. It may be set up or dismantled in 5 minutes time. When set up, it may be attached for operation to a door or wall, hooked over a door top or set upon a table. When dismantled it occupies less than one cubic foot storage space. As an enlarger it takes negatives from 35 mm. to 3¼"x4¼". As contact printer it takes negatives up to 4"x5". Of professional caliber throughout, the Photo-Compact includes such features as built-in light dodger, built-in receptacle for timer or foot switch connections, micrometer smooth focusing method, foolproof safelight switching arrangements, etc. Priced complete at only $34.50. Literature may be had without charge by addressing the manufacturer.

A new Preset Calculator for G-E Exposure Meters has been announced by the General Electric Co. of Schenectady, N.Y. It is especially designed to fit present DW-48 exposure meters and the calculator hood is particularly adapted to movie making but can be used for stills as well. The calculator's preset feature makes further adjustment unnecessary, once it has been set and locked. The interchangeable hood with preset calculators is standard equipment on the new G-E type DW-49 exposure meter, which was introduced on October 1st. Cine photographers should ask to see this new model of the G-E Exposure Meter which is particularly adapted to their needs.

The new Argus Colorcamera is especially designed for the making of color photographs on 35 mm. Kodachrome. Outstanding features are a built-in photoelectric exposure meter and a color corrected lens with the high maximum aperture of F:4. The camera will focus up to 15 inches and has shutter speeds from 1/25th second to 1/150th second. All this for the remarkably low price of $25.00.

Also just announced is the Argus A3, identical to the Argus Colorcamera except that it has an extinction type exposure meter. Price is $15.00. See these new cameras at your dealers.

Chess-United announces that the Omag Genuine Optical Glass Filters line has been completely revised and brought up-to-date with the inclusion of their Omag Sunshade and Filter Cine Kit.

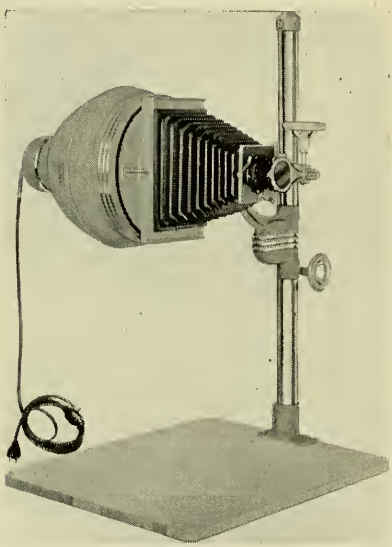
These Omag Kits fit most cine cameras: Bell & Howell, Eastman Kodak (including the 8 mm. Model 90), Revere, Keystone, Univex and many others now available. Each Kit contains a duraluminum combination sunshade and filter holder, four (4) genuine Omag optical glass filters (yellow, green, red and haze for Kodachrome), and a utility carrying pouch.

Also available for the first time are Dural Slip-on Sunshades that fit all standard filter mounts and camera lenses as well as all Omag Filter Mounts and is priced at only $1.00.

The new Chardelle Meteor Flash, just placed on the market by American Bolex Company, 155 East 44th St., New York, N. Y., offers photographers a precision built synchronizer at the remarkably low price of $9.95. The manufacturer has taken particular care to design the synchronizer so that

al damage to shutters may be avoided. This problem is met by the design of 19 different tips for the release mechanism, so that there is a tip especially made for practically every shutter in common use. This construction offers a definite advantage to the man with more than one camera. All he need do is obtain a tip for each shutter and the synchronizer is then fully interchangeable from one camera to another, the tips remaining permanently on each camera. An interesting exclusive feature is the new "spider-web" socket which makes the changing of bulbs rapid and easy. The synchronizer is guaranteed for one year and the manufacturers claim the maximum in accurate, sure, smooth synchronization even at the highest shutter speeds.

The same company is also offering a Multiflash Outfit consisting of 1 Meteor Flash Synchronizer with standard tip, 1 Connector Block, 3 Torch Units with Batteries, 3 Adjustable 5½" Aplanatic Chrome Reflectors, 2 Cables (14"), 2 Extension Cables (20 ft.), 2 Clamp Tripods, 1 Synchrolite (test lamp) and 1 Flash Exposure Calculator. Price $28.50. The Exposure Calculator can be purchased separately for $.50. Write to the above address for further details.

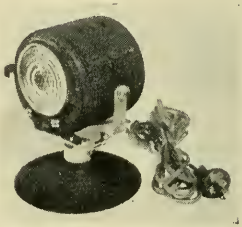


Solar Studio Enlarger

In line with their policy of constant improvement in the famous Solar line of enlargers, Burke & James, Inc., announces several new features in the Model 45-57 Studio Enlarger for 4x5 and 5x7 negatives. Chief among these is a new horizontal adjustment which permits wall projection or easel projection for larger "blow ups" or photo murals. This adjustment is already standard on the 35 mm. to 2¼x3¼ Model 1, 2, and 3 series. All models of the 45-57 Solar will now be finished in gray instead of black, giving the Studio Model an even more attractive appearance. Other features include double-adjustable, double-span bellows, bi-plane (heat absorbing) diffusion system, rack and pinion focusing, and vibration-free, rigid unit construction.

The new DeJur "Critic" Cine Exposure Meter, Model 40-C, designed especially for motion picture work, has been introduced by the DeJur-Amsco Corporation, of Shelton, Conn. In this new meter the critical movie fan will find every desired feature, plus quick and easy operation. Among its many features are: sensitivity from .1 to 4,000 candle light; narrow viewing angle; film speed from .3 to 800 Weston; shutter speeds from 6 frames to 120 frames per second; one-hand operation; and a locking device that facilitates quick reading. Price is $15.50. For further details see your local dealer or write the above address.

Agfa Infra-Red Film is now available in three roll film sizes, A8 (No. 127), PB20 (No. 620), and B2 (No. 120), announces Agfa Ansco from Binghamton, N.Y. This new Agfa Infra-Red roll film is coated with an emulsion similar to the well-known 35mm. infra-red film which, shortly after its introduction, won for Agfa Ansco, Hollywood's high technical honor—the Class II award of the Academy of Motion Picture Arts and Science.



Academy Baby Spotlight

The Academy Baby Spotlight which sells for only $6.95 has been designed particularly for the amateur photographer, announces the Frank A. Emmet Company 2707 West Pico Blvd., Los Angeles, California, exclusive distributor. The entire light weighs but 2¼ pounds, uses 100, 150 or 200 Watt T-8 bulbs. It is equipped with 3" Fresnel lens with attached slots to hold diffusion disk or filter. It can be changed from spot to flood instantly with a push and pull adjustment lever. It is sturdily built and well ventilated and comes equipped with a 12-foot cord and switch attached. See it at your dealer's or write the above address for further details.

Two new accessories for the A Assembly of the Kodak Precision Enlarger are announced from Rochester by the Eastman Kodak Company. New Roll Film Support Cups A are now available, for use when roll film is used in the strip. The cups clamp to the under side of the top member of the Bellows Assembly. Price of the two Roll Film Support Cups A is $3.00 retail. A new Camera Back Adapter A for 2¼x3¼-inch Graflex holders is also available. It is similar in construction to the Camera Back Adapter A for 6.5x9cm. Kodak Holders, and, like that adapter, converts the Bellows Assembly A for use as a camera. The retail price is $10.

The F-R Adjusto Print Press has been introduced by the Fink-Roselieve Company, Inc. The press will accommodate 100 prints between blotters. It is of very fine, heavy, all-steel construction, designed to eliminate

every possibility of warping and thus ensure pressing prints absolutely flat. Dimensions are 12"x15" which conveniently accommodates prints up to and including 11" by 14" in size. The F-R Adjusto Print Press fulfills the longfelt need for a simple, easy-to-operate press. It is priced at $3.95 and is available from your local photographic supply house.

The Kel-Greeting Card Kit for all seasons offers the amateur or professional photographer an ideal method of producing individual greeting cards for all occasions. The outfit is used with your negatives to produce an infinite variety of personal greeting cards. The kit contains 12 different greeting negatives, a double vertical mask with margin guides, a double horizontal mask with margin guides, an embossing device, an embossing tool, one roll of masking tape and one sheet of masking paper. Complete instructions for printing and embossing cards are also included. The Kel-Greeting Card Kit is priced at only $1.00. A descriptive circular is available from the Kelley Photo Supply Co., 326 North Michigan, Chicago, Ill.

Four new modern streamlined enlargers have been announced by the Elwood Pattern Works, Inc., Indianapolis, Ind. The new enlargers are fundamentally new in design, finish, appearance and efficiency. The entire body and front of the new machines are now made of cast and machined aluminum. Woodwork has been entirely eliminated except for the negative carrier and support foot. The reflector and lamp house are also new and are a decided advancement in illumination; reflectors are larger and much deeper than any thus far used, and they are shaped so that slightly more light is reflected and projected through the corners of the negative than in the center, which compensates for the falling off in illumination that is present, to some extent, in every photographic lens. One of the new models will accommodate any film size from 35mm. to 8"x10" and without lenses they range in price from $32.50 to $135.00. See them at your dealer or write the above address for descriptive literature.

The New Vimo Flashgun has just been announced by the Abbey Photo Corporation, 305 E. 45th Street, New York City. The Vimo, which sells for $13.75, offers advanced amateurs and professionals a flashgun with 100 per cent electrical operation. It is especially intended for cameras having Kodamatic, Supermatic or Compur Rapid shutters. The Vimo Flashgun has a professional type battery case and reflector. The socket is exactly the same as those now regularly furnished on Abbey Super Press and M/M Flashguns. The heart of the Vimo Flashgun is the new type of solenoid tripper. This is an exceedingly light part which threads into the cable release socket of a shutter the same as an ordinary cable release. However, it is discharged electrically and there is no resetting or cocking between flashes. All camera speeds are synchronized, including 1/500 second. Further details may be obtained from the above address.

Announcements

The Technifinish Laboratory is now located at 461-K Brown Street, Rochester, N.Y. They feature 35mm. fine grain developing, in Eastman DK20, with 3"x1" enlargements for 85 cents per roll. Complete information and mailing bags may be obtained from the address above.

The School of Photographic Arts, 37 West 57th Street, New York City are featuring a basic pre-military course, based on the army's own training schedule. The course is designed to prepare photographers for army work, either aerial or ground. Evening classes are available. Write the above address for further details.

The most successful photographic meeting ever held was the recent 1940 Combined Photographic Industry Convention and Trade Show. The total attendance was 4,327. Of this number, 2,321 represented studio owners; 752 were wholesalers, distributors and dealers in photographic supplies; 903 were representatives of manufacturers and importers, with 351 unclassified visitors. Mr. Charles Abel, Executive Manager of the Photographers' Association of America and Mr. H. O. Bodine, Executive Secretary of the National Photographic Dealers' Association, who jointly managed the meeting, are to be congratulated for putting on photography's greatest event.

A series of free lectures are now being conducted at the 336 Madison Avenue store of Abe Cohen's Exchange, Inc., New York City. Lectures are given each Tuesday evening at 8:00 p.m. during October and November and will continue until December 3rd. Many famous photographers will appear as lecturers. Among them: Karl A. Barleban, F.R.P.S., Phil Sperry, F.R.P.S., LeRoy Roselieve, Herman J. Hesse, W. A. Reedy, Anton Bruehl, Karl Staley, Alan Fisher, Kip Ross, F.R.P.S., H. B. Tuttle, Victor Keppler, Henry M. Lester and Frederick G. Beach, A.C.L. Tickets may be obtained free of charge at the address given above but admission is by ticket only. A circular giving a complete list of lectures is available. Make your application for tickets early.

It is with deep regret that we learn of the sudden death of Charles H. Huesgen, well-known photo supply dealer in New York City. His many friends in photographic circles will join us in extending sympathy to his family.

Attention: "The undersigned, during his Chicago stay for the Photographic Industries Convention, had the misfortune of leaving his black leather briefcase in a Checker taxicab. The case contained a loaded 35mm. Candid Camera "Beira" with a Laack F:2.7 lens No. 237547, an empty Goerz 2¼"x3¼" Tengor Camera with Syntor 5" lens No. 390563, and a photo-electric exposure meter. In case the "finder" of these cameras should offer them for sale or exchange to some Chicago dealer, we request that the Chicago police be notified. C. P. Goerz American Optical Co., Fred Schmid, President." If this equipment is offered for sale elsewhere, please communicate immediately with Mr. Schmid, at 317 East 34th St., New York City.

Every photographer should be familiar with those two handy items See-Sharp and

Pic-Sharp. See-Sharp is used on the enlarger baseboard and insures accurate hairline focusing. The price is $2.00. Pic-Sharp is used on the ground glass of any camera with this feature and performs the same useful function in focusing. Price is $1.00. See these handy accessories at your dealer's or write R. P. Cargille, Dept. 511, 18 Liberty Street, New York City.

Photographs wanted. Ed Wolff & Associates, 428 Taylor Building, Rochester, N.Y., advertising agency for Wollensak Optical Company, is interested in purchasing prints for use in Wollensak advertising. To deserve consideration, prints should be suitable to cover a full magazine page, and should have been made and/or enlarged through a Wollensak lens. Subjects may be what the artist prefers, but should exhibit qualities reflecting favorably on the lens used. Submissions should measure 10"x8", or larger, and enlargements which have won recognition or awards are wanted. Price in the case of acceptable prints will be established by negotiation. Unpurchased submissions will be returned.

Stolen, night Sept. 16, 1940, 2 cameras, 4x5 Graflex Series D No. 188799 with Bausch and Lomb Tessar 7" lens F4.5 No. 3240236, and old 10x15 cm. German Camera Converted to 4x5, taped up with Scotch Tape all around a 4x5 revolving back and Zeiss Tessar F4.5 Lens No. 608488 in Compur shutter. Reward. William F. Howe, photographer, 99 Concord Street, Portland, Maine.

Booklets and Catalogs

Secretaries of camera clubs who are interested can receive booklets on "Making Up For the Camera Simplified" and "Simplified Make-up For Color Film," by communicating with Miner's, Inc., 12 East 12th St., New York, N.Y. Recent issues of "Studio Light" of Eastman Kodak Company, recommend specifically that make-up be used for all color film. Miner's Make-up Kits make it possible for even the most inexperienced to get better looking pictures with color and black and white film.

A new Devin-McGraw manual on carbro printing has just been announced by the Devin-McGraw Colorgraph Co., 175 South Verdugo St., Burbank, Calif. The manual, entitled "Tricolor Pigment Printing," has been completely revised and rewritten and presents new working methods, the latest trouble shooting remedies, etc. Price is only 50c.

A free bargain list is available upon request from "The House of Camera Bargains," Wells-Smith, 71 E. Adams St., Chicago, Ill.

"Shadowless Lighting." Complete plans, specifications, and technique of this interesting lighting system are now available from its greatest exponent, Mr. Fred P. Peel, F.R.P.S. The small price of $1.00 also includes a direct bromide enlargement of one of Mr. Peel's masterpieces in shadowless high key figure study. Order direct from Mr. Fred P. Peel, F.R.P.S., Chester, Pa.

A booklet on the new Chromax-Dyeset System, now available from the Fotoshop Color Photography Department, illustrated with four-color process reproductions, contains full description of the process, with illustrated working directions. The Chromax Process is exciting very favorable comment from users in the East. The results are often compared to Carbro for excellence of flesh tone and delicate gradation, and yet the process retains all of the ease of manipulation common to Wash-Off Relief. Color enthusiasts may obtain the booklet by writing Fotoshop, 18 E. 42 Street, N.Y.C., Dept. CR-2.

A new Bass Cine Bargaingram No. 245 is now available announces the Bass Camera Co., Inc., 179 West Madison St., Chicago, Ill. This 84-page book covers cine apparatus exclusively, including 8 mm., 16 mm., and 35 mm., silent and sound. A copy is available without charge from the above address.

A new flash data book has just been issued by Goodspeed, Inc., 220 Fifth Avenue, New York City. It is a pocket-sized booklet of 32 pages entitled "An Outline of Modern Flash Photography" and was prepared by Karl A. Barleban, F.R.P.S. Priced at 10c a copy, the book offers the beginner in flash work, the answers to his questions, including data on synchronizers, reflectors, batteries, choice of bulbs, multiple flash, sun flash and other interesting points. Copies can be obtained at all camera shops or direct from the above address at 10c per copy.

A new bargain list just off the press is now available from Willoughby's Inc., 110 W. 32nd St., New York City. A copy will be sent without charge upon request to the above address.

Two new 10-cent Kodagnides are announced by the Eastman Kodak Company, Rochester, to be available through Kodak dealers. The Kodachrome Outdoor Guide—35mm. and Bantam—is like other dial type Kodaguides in size, style and appearance. It gives shutter speed and diaphragm combinations for all types of daylight lighting conditions. The back of the guide includes much useful information on the taking of Kodachrome shots under unusual lighting conditions. The Eastman Paper Kodaguide offers, in compact clear form, data regarding many characteristics of Eastman sensitized papers for contact printing and enlarging. A contrast grouping indicates all papers which may be used with any negative of a given contrast. Also tabulated are developing, toning and safelight recommendations, and the guide includes hints on selecting paper surfaces and tones.

The 1941 Fotoshop Almanac Catalog and Foto Digest has just been announced by the Fotoshop, Inc., 18 E. 42nd St., New York City. It offers three books in one, a Buyer's Guide, a Merchandise Directory, and a magazine—the Foto Digest, 200 pages of information of interest to every photographer. The Foto Digest features articles by famous photographers such as Willard D. Morgan and Paul Outerbridge. Price of the Fotoshop Almanac Catalog is 25c which is refunded on the first $2.00 purchase. The special deluxe bound edition of the Fotoshop Almanac and Foto Digest is priced at 75c. Only a limited number will be published, so reserve your copy now at the above address.

A 20-page booklet entitled "Du Pont Miniature Camera Films," is available without charge from the Du Pont Film Mfg. Corp., 9 Rockefeller Plaza, New York City. The booklet describes the characteristics of these films and outlines suggested processing techniques.

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"Hungarian Girl" *William Mortensen*

Portrait Procedure

William Mortensen

Part I

IN pair of articles a couple of months ago, we discussed something of the ideology of photographic portraiture. In photography we have a means unequaled in any other portrait medium of arriving quickly and concisely at truth and sincerity. Yet photographic portraiture as a whole is notoriously vacuous, superficial and insincere. This potentially truthful medium is ridden by all sorts of false ideals. Some of the falsity is imposed by the vanity of the sitter, some of it by the vanity of the photographer. In a word, the sitter hopes some one will say, "How like Hedy Lamarr," and the photographer hopes some one will say, "How like Steichen." So, much sedulous attention is paid to the current ideal of glamour, and a great deal of effort is expended on cooking up surface *effects:* make-up effects, costume effects, lighting effects, posing effects—and the photographer usually throws in a few pet effects of his own. And all the while the sitter is possessed of good basic structure well worth rendering, and all the while the photographer has in his hands the means of rendering it. The business of a sound portraitist is, first, to take note of this structure; and, second, to render it with as little nonsense as possible.

In this article, I want to discuss some of the concrete problems involved in an actual sitting. But before we bring on the sitter, there are a few preliminary mechanical points to be considered.

First, as to the atmosphere of the work room. It should endeavor in all respects to keep up the sitter's morale. So it should be as straightforward and normal a room as possible. There should be no ostentatious display of alarming glittering gadgets and outlandish mechanisms. Keep away from any suggestion of a surgery or dentist's office. On the other hand, avoid the gloomy and mysterious, with soft lights, deep carpets and a lurking aroma of oriental incense.

Figure 1. For the sitter.

Figure 2. The sitter.

The room should be brightly lighted so as to avoid shock to the sitter's eyes when the working lights are turned on. In any case, avoid a dark room with spot lights focussed on the sitter's chair. The suggestion of thus baring themselves to scrutiny is very unpleasant to nervous sitters.

A plain white background is best for most portraiture. It exhibits the structure of the sitter's face freely and objectively and is subject to considerable control in tone through the adjustment of the lighting units.* A black background is too dramatic in its implications for average portraiture.

Now, as to accommodations for the sitter. In other words, where shall the sitter sit?

A chair of conventional type is not good for this purpose. In the first place, it is bad for the design of the picture. A chair back is usually an obvious foreign element which, by its distracting influence, reduces the isolation and significance of the head. An ordinary chair is also bad from the psychological point of view. A timid sitter is apt to shrink down into a chair, while a lethargic one goes even deader if he is too comfortable.

A more precarious perch is much better. An ideal device is the old-fashioned piano stool. The venerable relic shown in Figure 1 has been in service in my studio for at least fifteen years and has, in its day, sustained some very distinguished and glamorous torsos, as well as those of Mary Glutz and Joe Doakes. If you want a little more presentable piece of furniture, the variety of adjustable revolving seat found in beauty shops may be used.

The advantages of the revolving stool are many. In the first place, it is readily adjusted to the height of any sitter. Second, it unconsciously

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* See **Pictorial Lighting.**

Figure 3. The portrait.

compells a degree of cooperation from the sitter, who has to maintain a fairly straight spine and good posture in order to prevent himself from falling off. This very effort and exertion go a long way toward conquering the bland expressionlessness and "dead pan" of a certain phlegmatic type of sitter. And the little physical problem of keeping himself balanced often helps overcome the frozen self-consciousness of the panicky sitter. Finally, it should be noted that this type of seat permits the model to swing readily to right or left. Thus it is possible to get all needed angles of the head and shoulders without readjusting the seat or the position of the camera.

It is to the use of this type of seat, and to one other factor, that I attribute my happy escape—for the most part—from that bane of all portrait photographers—the re-sitting. A second sitting after an initial failure is a very difficult affair. There is an unpleasant psychological barrier the second time: both photographer and sitter feel that they have lost "face," and not even subsequent success can quite atone for the first failure.

The revolving seat is strong assurance against re-sittings because it secures a vital reaction from the sitter and makes it possible to secure all sorts of angles. The other factor that must go along with the use of this type of seat is—*plenty of exposures.* It is very poor economy to be sparing of material. In strictly commercial terms, if you expend film freely on a sitting, your improved results will justify your charging a price that will more than compensate you. So, take care to get as many slight variants as possible of every reasonable-looking pose. Also record some that are not so reasonable, for these have a way of turning out to be useful. Never shoot fewer than two or three dozen exposures on a sitting. If you are using a miniature, shoot at least two full rolls. It is much easier to "sell" a customer on a sitting when you are able to show him, by dozens of proofs, that all contingencies have been met.

We will now get on with the sitting. Meet the sitter (Figure 2) as she faces the camera. She is a young American, attractive, healthy, and of good sound structure. On the whole, she is an average—or rather better than average—specimen of the photographer's portrait problem. I want to tell you, in reasonable detail, how we arrived at the result shown in Figure 3.

Of course, before she presents herself before the camera as in Figure 2, certain things have already happened to her. She arrived at the studio as shown in Figure 4—a smart get-up for street wear, but photographically bad. The make-up is too conspicuous, and the hat and dress to pronounced in pattern. So the make-up is wiped off with cold cream, the hat removed, and the dress replaced with a blouse of simple neckline.

When you have your model before you, the first problem is to learn to look at him (or her) without staring. Any impression of searching scrutiny immediately brings to the fore all the worst characteristics of the sitter.

A sitting is much more of a psychological problem than it is a plastic one. A portrait must never be thought of as a sort of special department of still life. A sitter—even the most biddable and complaisant sitter—cannot be arranged like a bowl of flowers. The sitter is a personality; the photographer, another personality. Every sitting must be a carefully conducted drama of the interplay of personalities.

Figure 4.
As she arrives.

In his first impersonal glance at his subject, as he or she* sits before the camera, the photographer can tell whether he should swing right into the sitting, or whether there are some preliminary impediments to be dealt with. The experience, exciting or alarming, of going before the camera, is apt to produce strange reactions in the sitter. Two of the commonest and most familiar of these reactions we may designate as

1. Hysteric.
2. Cataleptic.

The hysteric type (Figure 5) is usually very chatty and amused over the whole situation. She regales you, amid shrieks of laughter, with her experience the last time she had her picture taken. She bounces gaily into the operating room, seats herself and begins immediately to pose with acrobatic abandon.

The cataleptic type (Figure 6) is from the beginning rather apprehensive of things. All preliminary preparations increase her nervousness, and she approaches the camera room as though she were mounting the thirteen steps. When finally she sits under the glassy eye of the camera, all her defenses dissolve, her muscles freeze, her very will atrophies, and no amount of posing is able to bring life into her somnambulistic "dead pan."

* In order to avoid driving you crazy with this "he-or-she" formula, I will (since our model for demonstration happens to be of the female gender) from now on refer to the sitter as "she." But please bear in mind that the male sitter is equally liable to the "hysteric" and "cataleptic" symptoms that I mention.

Figure 5. The hysteric type.

Figure 6. The cataleptic type.

A photographer must be prepared to deal with both these types, to delicately administer a sedative to one and a stimulant to the other. Quite different handling is required by each.

With the hysteric type, the photographer must immediately take a firm and dominant attitude. Unless he does, he will find the sitting getting out of control, with the sitter rushing madly ahead and himself limping frantically behind. From the very first exposure, he must set himself to *tone down* his subject. The general formula is: Not So Much. For example: "Lower your chin a bit." "Drop your shoulder." "Not so much smile." "The eyes lower." Or, if the subject still persists in exaggeration, 'Break it up and begin over again." In this fashion, the sitter is gradually brought under control and her swelling exuberance reduced to a workable scale.

The cataleptic type requires gentle handling. Her ego needs to be sustained rather than restrained. So give such a sitter time and opportunity to pull herself together. Whatever you do, don't admonish her to "relax," for this suggestion simply directs more attention to her condition. With a desperate effort, she will relax herself right into a cramp. By various devices, try to turn the subject's attention outward from her terrifying self-contemplation. A bit of flattery is not out of place. Show her, for instance, a very stunning picture. "Here's something I just finished. You're rather the same type." Or the photographer may deliberately perpetrate a minor *faux pas.* Let him, for example, trip over a light cable, drop a plate holder, or make an exposure with the black slide in place. By reducing his own prestige a little, he will build up the self-esteem and poise of the subject. Sometimes the photographer will find it advisable to invent an errand to take him out of the room for a minute or two. In his absence, the sitter will have a change to recover her composure.

We return now to the present sitter. (Figure 2.) Note the lighting used. It is simple, straightforward and direct. It is a type of illumination that we have elsewhere as the Modified Basic Light.* It is produced by a simple set-up of two lighting units—one for the background, one for the subject—and is pre-eminently a light for portraiture.

In such an illumination, the subject is presented directly and on its own merits, without any irrelevant sideshow of lighting *effects*. In Figure 3, indeed, you are not aware of any lighting at all: you simply see the subject to good advantage. Many ostensible portraits are not portraits at all, but merely studies in lighting. Sample caption: "The Forty-Five Degree Light. (Interpreted by Madaleine Carroll.)"

A further advantage of the Basic type of light for portraiture is its thorough-going *flexibility*. A forty-five degree type of lighting, such as we mentioned above, dictates a particular position and angle for the subject. A new position of the subject requires a new set-up and reshuffle of lighting units. With a Basic type of light, however, since the principal light source is near the camera, the sitter can move through ten thousand different positions and be properly lighted in all of them. A single set-up of lighting units may readily serve for the entire sitting. This fact is invaluable when we are basing our sitting on a large number of exposures.

Next month we will continue with the sitting.

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* See **Pictorial Lighting.**

Darkroom Sinks And Drainage

Nestor Barrett and Ralph Wyckoff*

PERHAPS the fact that much of the amateur photographer's work is done in the dark is the reason he has not demanded better working facilities than he has. He really never gets a good look at his primitive layout. Whatever the reason, it is an indisputable statement that very little progress has been made in working methods and apparatus in the last thirty years, and even the most recently published material on darkrooms

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* **Authors of "How To Build and Equip A Modern Darkroom." Camera Craft Pub. Co., $2.00. Ready December 15th.**

is little better than a rehash of practices known almost since cameras came into being.

Next to the camera itself the proper drainage and sink facilities are most important. They are the bugbear of anyone who starts to build a darkroom and the solution of the many problems encountered can be quite puzzling. Yet there can be found on the market today materials and machines which solve these problems but which seem to be generally neglected by the photographic fraternity. In this article we will discuss just two darkroom items, i.e., sinks and drainage, in the light of modern architectural practice.

Sinks

One of the questions which arises every time darkroom construction is discussed is the type of sink to buy. There are a variety of types and sizes available, all excellent, so that the only limitation is the pocketbook or personal preference.

The first thing that comes to mind is the ordinary kitchen sink. Some amateurs like to pick up old ones and fix them up. If the sink is thoroughly cleaned and before installation is painted with acid resistant paint made from an asphalt base it will give good service. Kodacoat paint sold by Eastman is a good product for this purpose.

If you propose to buy a new sink and can afford the cast iron type only, at least get the kind called acid resistant. They are coated with an acid resistant enamel very similar to the enameled trays used for developing and hypo baths. Special sinks made from vitreous china can also be obtained from the plumbing supply house, and being made especially for laboratory use, should prove excellent for a darkroom. They are somewhat higher in price than the enameled sinks. Here is a comparison in prices to give you an idea of the costs. These prices do not include strainers.

Cast Iron Acid Resistant Enameled Sinks

Size in Inches	Price
18x24	$ 9.60
18x30	8.35*
20x36	13.80

Vitreous China Laboratory Sinks

Size in Inches	Price
16x24	$18.00
20x30	25.00

It will be noted that we have not listed any sink smaller than 16″x24″. This is because we feel that every darkroom sink should be capable of handling a 16″x20″ print, since the trend, at this time at least, is toward larger and larger prints.

The sinks come with a flat rim which adapts them perfectly for building into the wood framing. Usually they are supported by cleats nailed on at intervals underneath. They should be mounted with the rim level, as the

* This sink costs less than the smaller size because it is one of the standard sizes, whereas the other one is an odd size.

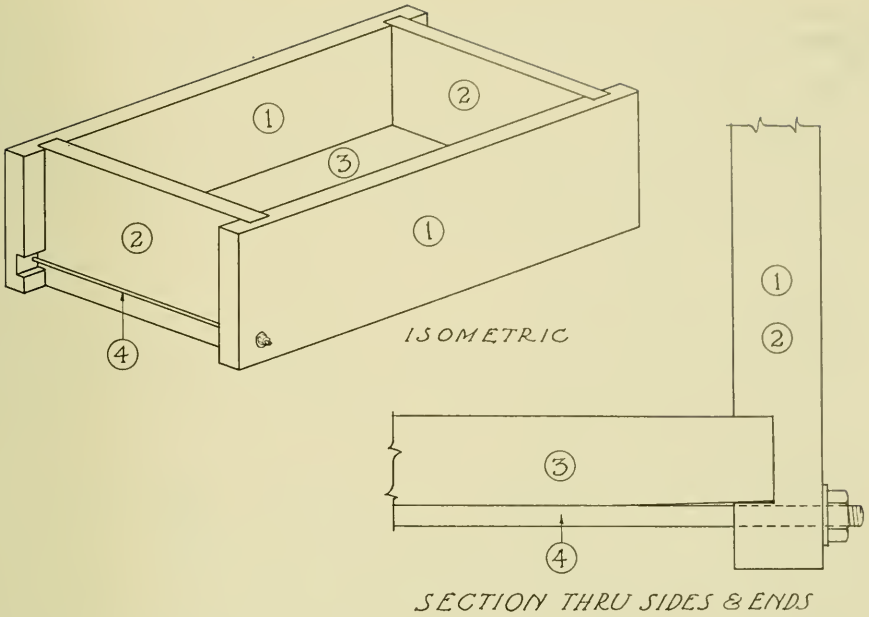


Figure 1. These drawings show clearly the method of constructing a wooden sink. Notice how the ends (2) are morticed into the sides (1). The bottom (3) is preferably one piece of lumber or, if more than one piece, a securely joined bottom with dowels and glue. As an additional strengthening factor iron rods (4) are used on the ends to tighten the whole structure and hold it firmly together.

necessary slope in the bottom for drainage has been provided by the manufacturers. The drain hole, which can be supplied with a little gadget which stops it up for use as a large tank, is placed in either the end or the center. The end type drain is probably the most convenient for photographic use, but personal preference can be followed in this detail.

A good many useful photographic tanks and sinks have been constructed from wood. If the job is properly done, this is a highly satisfactory system and relatively inexpensive. The hitch is to do it properly. A wooden sink which has been poorly constructed is worse than none at all, for it is a constant source of worry, always in need of repair and distressingly inclined to leak.

Figure 1 shows the proper method of construction. Sugar pine is a good wood to use and the pieces should be at least one inch thick. The bottom of the sink should be one piece; that is, a board made up of several pieces if necessary but joined together with tight, well-fitted joints by the usual dowel and glue method. The corners and bottom are connected by mortise construction and wood screws used to hold them together.

One method of waterproofing is to coat the inside surfaces with liquid wax. The lumber must be thoroughly impregnated. This is done by apply-

ing one coat after another until the pores in the wood are completely filled. It can be easily told when this point has been reached, which is usually after the third coat, by a scum which is left and must be wiped off. The sink is now ready for use.

Another method for waterproofing which is used by large chemical laboratories and often specified in building contracts is by using what is called an acidproof stain. If you use this stain it is not necessary to apply the wax treatment previously described.

Acidproof Wood Stain

SOLUTION ONE

	Metric	Avoirdupois
Copper Sulphate	125 grams	4 oz. 178 grains
Potassium Chlorate	125 grams	4 oz. 178 grains
Water	1000 cc.	1 qt.

SOLUTION TWO

Aniline Oil (must be good quality, fresh)	150 grams	5 oz. 127 grains
Hydrochloric Acid (concentrated)	180 grams	6 oz. 152 grains
Water	1000 cc.	1 qt.

First clean the wood, being sure that it is free from varnish, grease, paint or chemicals. Apply two coats of Solution One, boiling hot, with a paint brush. Allow each coat to dry thoroughly before the next coat is applied. Then apply two coats of Solution Two in the same manner. When the wood is completely dried, wash off the excess chemicals with hot soapsuds and water.

The sink should now be given a coat of raw linseed oil and then polished by rubbing down thoroughly with a cloth or sponge. The result will be a watertight, acidproof piece of equipment which should give satisfaction over a long period of time. This procedure is also useful for constructing tanks of all sizes, including those used for hypo and deep tanks for developing roll films.

Metal sinks made up to order to fit the particular sizes wanted can also be used to some advantage. One of the writers used a lead sink which he had specially constructed, for a number of years with absolute satisfaction. It was mounted in a wooden frame similar to a box with a top removed but fully supported along its base.

Figure 2 shows the method of attaching the metal to the wood framing.

A number of metals have been tried for tank and sink use in photography, particularly those falling in the nickel-iron group. Monel metal has been used extensively for washing trays and for film clips. One of the latest and most successful developments of this group is an alloy called Inconel which is composed of 80 per cent nickel, 14 per cent chromium and 6 per cent iron. A rather thorough investigation of its properties as applied to photographic use has been made and published.*

There is not space here to go into detail about the tests made but suffice it to say that the metal was found satisfactory for all developing solu-

* Journal of the Society of Motion Picture Engineers, Vol. XXIV, No. 4, 1935, pp. 357-371.

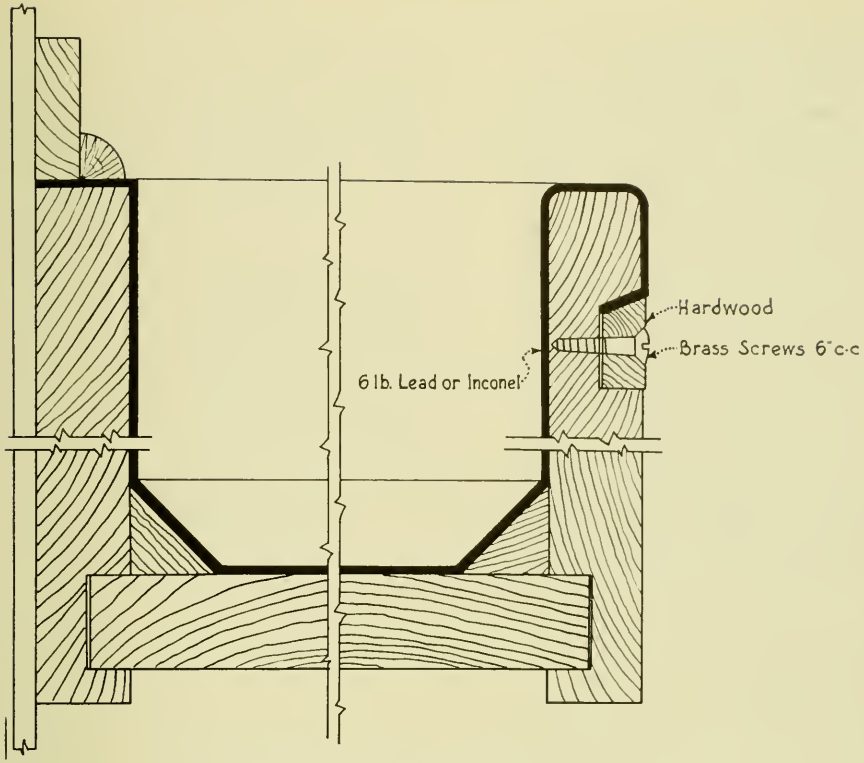


Figure 2. Construction of metal-lined sink.

tions. But its most important property was its resistance to corrosion from fixing solutions. It is well known, of course, that most metals and alloys will precipitate silver from exhausted hypo fixing baths. This precipitation is usually accompanied by a certain amount of corrosion. Tanks made of Inconel used for hypo solutions exclusively over a long period of time have shown no evidence of corrosion and remained clean and bright.

Inconel is slightly more expensive than stainless steel. The following price list will give the reader an idea of what to expect when contemplating using either metal.

Photographic Trays

Film Size—Inches	Actual Inside Bottom—Inches	Inconel	Stainless Steel
7x 9 and 8x10	9x11 x2	$ 6.75	$ 6.50
10x12 and 11x14	12x16 x2½	10.00	8.50
14x17	15x18½x3	11.50	9.25
16x20 and 18x22	19x23 x3	15.50	13.00

The trays (Figure 3) are made from a single piece and are finished

smooth. They are polished inside and have a continuous, straight lip all around for rigidness.

One word of warning about all equipment made of Monel, Inconel and other corrosive resisting materials. Toning, intensification and reducing solutions will attack them and they are not suitable for this purpose if much volume of work along these lines is to be done.

Drainage

The problem of drainage in a darkrom is often a difficult one. Those who build their workrooms on the ground floor of their homes or in the attic will experience no difficulty in finding a place to connect the waste pipe from the sink. But the man who must work in the cellar, often below the level of the sewer in the street, will naturally wonder what to do. This may seem an insurmountable problem to the uninitiated, but it can in fact be easily and inexpensively solved.

A number of companies produce a device called an automatic cellar drainer, just to meet such a condition as has been outlined. This is a pump which is installed below the floor of the basement in a sump. The waste pipes from the sink are allowed to discharge into the sump around the machine. As the water rises, it lifts a float. When the float has reached a certain height it opens a valve which starts the ejector. The ejector pumps rapidly until the level of the water in the sump has lowered to a point where the float, in descending with the level of the sump water, automatically closes the valve.

The pump in the cellar drainer is operated by the pressure of the water in the regular domestic water supply, to which it is connected. In nearly all places this will be the cheapest power. The drainer is entirely automatic, turning itself on and off whenever the water in the sump reaches the proper levels. The drainers can be obtained at slightly lower prices without the automatic feature, but the difference in expense is so slight it will not pay to go without the convenience of automatic operation.

Figure 4 shows plainly how the drainers are installed. To illustrate, we have selected the smallest drainer, because we believe it will handle all ordinary basement darkroom drainage problems. This model sells for $14.50 in the full automatic type and weighs about 11 pounds. The non-automatic in the same size costs $10.00 and weighs 6½ pounds.

Assuming that the ordinary household water pressure is between 40 and 60 pounds a square inch, this drainer will remove between 280 and 480 gallons an hour from the sump where the water is lifted a distance of 9 feet. An ordinary household faucet, when turned on to maximum flow at the previously mentioned pressures runs between three and five gallons a minute. This is a maximum of 300 gallons an hour, which is within the capacity of the apparatus described. The greatest flow of water likely to occur in a darkroom is in washing prints, but it is hardly likely that the faucet will be turned on full for this purpose as only a gentle current is desirable.

The figures just given apply to the condition where the water is being lifted 9 feet; that is, where the distance from the sump to the main sewer is 9 feet. If the distance is 6 feet, the drainer will remove 390 gallons an hour, if 3 feet 510 gallons an hour, based on a water pressure of 40 pounds a square inch in the supply mains.

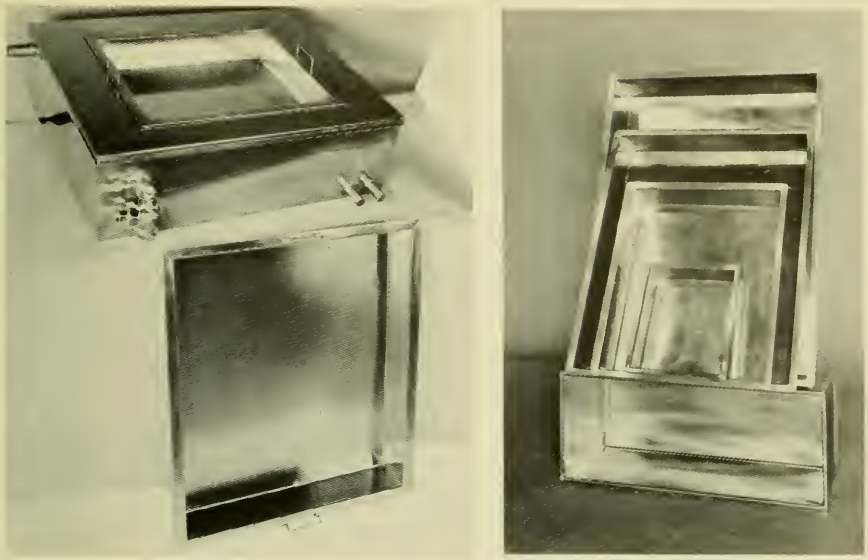


Figure 3—Inconel Trays.

Before deciding on the purchase of a cellar drainer you should first determine the pressure of water in your household supply, which you can do by phoning the city water department. If you find that water pressure in your city is unusually low, that is less than 15 pounds a square inch, or if you must lift the waste water from your sump an unusual height, you should write directly to the manufacturers of the drainers, and they will advise you of the proper machine to buy to fit conditions in your locality.

Some may wonder how much fresh water will be needed to run the ejector pump. The size and model drainer previously mentioned will use 160 gallons an hour where the pressure is 40 pounds, 190 gallons an hour at 60 pounds pressure and 225 gallons an hour at 80 pounds pressure. These drainers can also be operated by steam in lieu of water.

Automatic electric sump pumps are also available. Conditions favoring the installation of an electric pump are:

1. Districts where city water pressure is not available, where pressure is very low or meter rates excessive.

2. Abnormally large quantities of water to be handled.

3. Discharge heads up to 22 feet. (The discharge head is the vertical distance from the water level in the sump to the point of discharge plus all head lost by pipe friction.)

4. Low operating cost.

One of the smallest size electric sump pumps sells for about $39.50. It consumes 300 watts of current an hour and is equipped with a one-quarter horsepower motor. Against a discharge head of 10 feet it will handle 1500

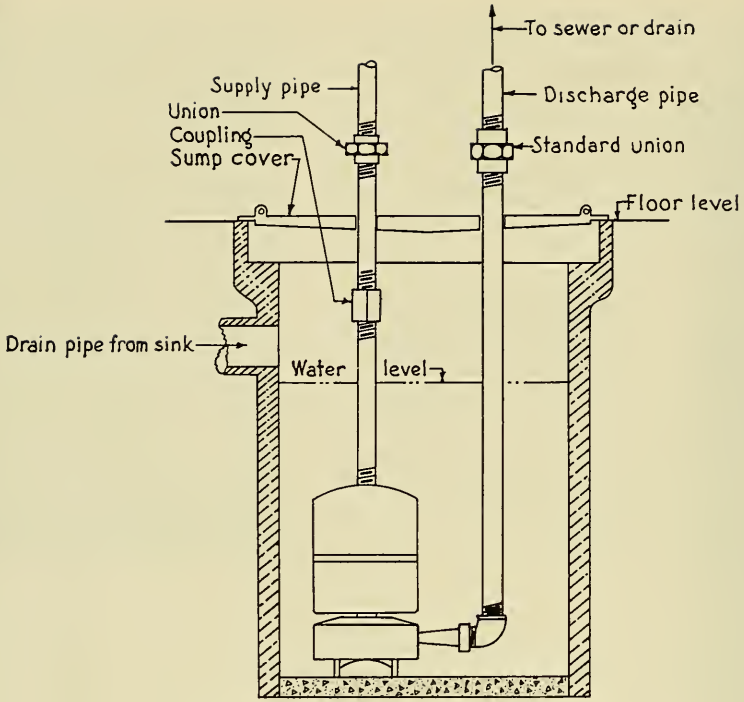


Figure 4. Installation of cellar drainer.

gallons an hour and even a 20-foot head cuts the discharge only to 750 gallons an hour—far greater capacity than will be needed in any amateur darkroom.

The pumps are easy to install. A hole is made in the floor of the basement and into this is sunk a piece of standard sewer crock from 15 to 24 inches in diameter and at least 2 feet long. The crock can be set flush with the top of the floor and the sink outlet pipes fitted to the opening in its side under the floor. The pump outlet is piped to the nearest and lowest sewer or surface outlet by the shortest and straightest route. A metal cover which fits into the upper or bell end of the sewer crock and which has all the holes provided for the pipes and connections can be obtained from the drainer manufacturers.

Thus we see that two vexing darkroom problems are easily solved by applying simple methods known to every competent architect. When this type of thinking is applied to every problem met in constructing a modern photographic laboratory, making use of the literally thousands of ingenious materials which the building industry has developed in the last few years, it is easy to see that something better than the usual cramped, hard to clean, ill-ventilated cubbyhole we amateurs have so aptly named darkroom, should result.

Technical Problems Of Kodachrome Exposure

Dudley Haskell*

Part II

A reading of the first part of this article which appeared in the November 1940 issue is essential to complete understanding.—Ed.

THE data in Table (III) (Part I) can advantageously be placed on semi-logarithmic chart paper. Chart (I) represents the complete Neutral and Red relationship. Chart (III) compares a theoretically Ideal Exposure relationship with the practically determined actual exposure-transmission for Yellow-Red of Value 4.

Significance of the Charts

In Chart (I) it will be noted that in the case of Medium Value colors, such as R5/2, R5/4—R5/12, the Normal (N) line is somewhat below the Reflection (R) line, because experience has shown that a color should be reproduced *slightly* on the dark or underexposed side. The tendency for Kodachrome to exaggerate contrasts is also depicted on the charts. The dark colors R3/2—R3/10 are a greater distance below the R line, for Normal exposure, than medium colors R5/2—R5/12, indicating a progressively increased tendency toward underexposure as the original color becomes darker. The converse, of course, is true. Numerous other peculiarities can be deduced from the charts. In the case of Red, the transmission increases more rapidly with increasing chroma than does the reflection. This is illustrated by the proportionately steeper upward movement of the lines from left to right, and indicates a tendency toward overexposure for Red.

It is not possible in the space of the present paper to record all the data obtained for all the hues, but one other Hue, Blue-Green, the com-

* Chemist, W. P. Fuller & Co., San Francisco.

plement of Red, will be considered in Chart (II).*

Blue-Green Charts

Since the lines for transmission run downward from left to right, as chroma increases, at a steeper angle than for reflection, the tendency is for underexposure.

Tri-chromatic Coefficients

In addition to transparency it is useful to record the accuracy of color rendition in hue and chroma. To do this the original colors were analyzed for tricolor reflection, as described in Part I, on the reflectometer, and the reproduced colors were measured with the same filters on the transmission densitometer. The results of a portion** of these readings are given in Table IV.

A study of the complete set of color reproductions shows that underexposure can be borne better by the warm hues than by the cool. On the other hand moderate overexposure does not exaggerate the transparency of cool colors to as great an extent as with reds, oranges, purples and magentas.

Using type B film and 3200°K. Mazda lamps throughout all exposures, it was found that different emulsions varied slightly in rendition, but in no case was the variation sufficient to be considered unsatisfactory.

A Comparative Analysis of the 10 Main Hues for Accuracy of Reproduction in Hue, Value and Chroma. In the following analysis the colors were rated according to the personal opinion of the writer. Where the rating is close the opinions of different observers may be different. However, this is of little importance since the comparison is only made to show in a general way in which one color is superior to another. By assigning a definite rating it is easier to remember the approximate quality to expect for a given color. In rating rendition, 1 is considered the best and 10 the least accurate.

Red

Hue:

Normal:*** Very nearly correct. Inclines to yellow.
Overexposure: Remains constant
Underexposure: Remains constant

Value:

Tends considerably to overexposure

Chroma:

Normal: Very good

* As a service to the serious Kodachrome worker Camera Craft is considering the production of a small size complete set of the Munsell Color Charts, accompanied by a complete set of charts similar to Charts I to IV which appear with this article and a grey card of recommended value for use in the Grey Card System of Kodachrome Exposure. The set would cost in the neighborhood of $2.00 if produced in reasonable quantity. This can only be undertaken if sufficient written response is forthcoming to warrant the effort.—Ed.

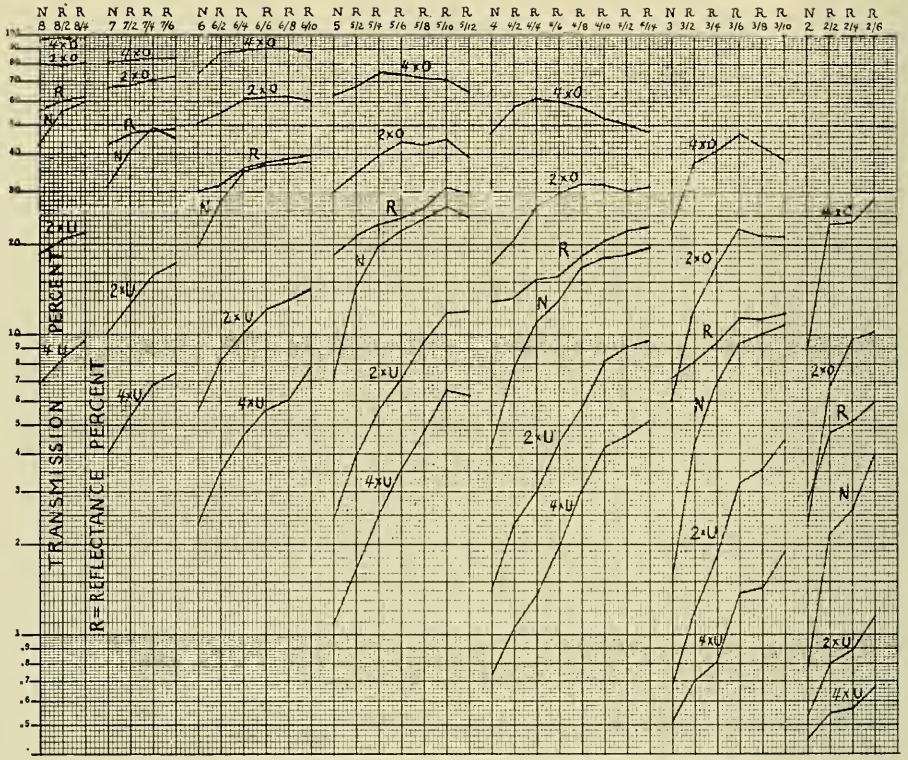
** "Home" Value Levels are represented, viz.: the value level at which the maximum chroma is reached in some particular hue (See Munsell, Book of Color, p. 39).

*** Normal, Over and Under refer to the results of the reproduced Munsell color charts as shown for Red in figs. (6-11), Part I.

Table (IV)

Tri-chromatic Coefficients for Home Value Levels of the 10 Principal Hues

Munsell Notation	Reflection Original Color			Normal Exposure			1 Stop Overexposure			1 Stop Underexposure		
	Blue	Green	Red	Blue	Green	Red	Blue	Green	Red	Blue	Green	Red
R4/2	.267	.275	.458	.314	.306	.380	.324	.324	.352	.265	.332	.403
R4/4	.227	.236	.537	.237	.274	.489	.269	.289	.442	.241	.269	.490
R4/6	.176	.197	.625	.158	.248	.594	.222	.258	.520	.154	.235	.611
R4/8	.134	.158	.708	.124	.197	.679	.163	.231	.606	.138	.187	.658
R4/10	.102	.135	.763	.094	.180	.726	.138	.210	.652	.104	.170	.726
R4/12	.091	.121	.788	.072	.163	.765	.111	.197	.692	.098	.169	.733
R4/14	.077	.113	.810	.063	.163	.774	.120	.203	.687	.090	.155	.755
YR6/2	.266	.333	.401	.304	.375	.321	.311	.345	.344	.324	.361	.305
YR6/4	.221	.324	.455	.231	.391	.378	.278	.338	.384	.230	.370	.400
YR6/6	.172	.307	.521	.161	.386	.453	.228	.348	.424	.178	.361	.461
YR6/8	.118	.290	.592	.109	.374	.517	.162	.353	.485	.136	.342	.522
YR6/10	.085	.287	.628	.083	.357	.560	.115	.363	.522	.103	.344	.553
YR6/12	.070	.276	.654	.066	.352	.582	.076	.366	.558	.097	.330	.573
Y8/2	.276	.353	.369	.273	.371	.356	.330	.327	.343	.278	.388	.334
Y8/4	.223	.366	.411	.237	.382	.381	.310	.340	.350	.223	.403	.374
Y8/6	.152	.397	.450	.181	.382	.437	.290	.348	.362	.169	.418	.413
Y8/8	.123	.402	.475	.105	.385	.510	.227	.368	.405	.112	.423	.465
Y8/10	.066	.428	.506	.071	.380	.549	.142	.386	.472	.085	.432	.483
Y8/12	.059	.427	.514	.057	.384	.559	.095	.392	.513	.077	.432	.490
GY7/2	.234	.398	.368	.306	.377	.317	.318	.346	.336	.298	.400	.302
GY7/4	.233	.407	.360	.254	.408	.338	.308	.354	.338	.230	.444	.326
GY7/6	.182	.448	.370	.173	.455	.372	.259	.373	.368	.210	.465	.325
GY7/8	.151	.475	.374	.134	.476	.390	.221	.395	.384	.156	.503	.341
GY7/10	.110	.516	.374	.082	.500	.418	.155	.416	.429	.134	.520	.346
G5/2	.334	.382	.284	.356	.416	.228	.370	.400	.230	.314	.440	.246
G5/4	.318	.420	.262	.371	.436	.193	.377	.437	.186	.311	.442	.247
G5/6	.332	.469	.199	.358	.457	.185	.377	.450	.173	.308	.443	.249
G5/8	.326	.508	.166	.309	.504	.187	.341	.499	.160	.249	.481	.270
BG5/2	.369	.367	.264	.402	.387	.211	.394	.376	.230	.383	.381	.236
BG5/4	.403	.382	.215	.425	.399	.176	.431	.386	.183	.378	.394	.228
BG5/6	.418	.397	.185	.473	.378	.149	.466	.360	.174	.380	.384	.236
B4/2	.446	.277	.277	.482	.318	.200	.450	.359	.191	.371	.353	.276
B4/4	.494	.261	.245	.533	.302	.165	.508	.340	.152	.458	.312	.230
B4/6	.560	.258	.182	.549	.297	.154	.555	.335	.110	.472	.299	.229
B4/8	.545	.303	.152	.578	.277	.145	.558	.331	.111	.450	.311	.239
PB3/2	.410	.304	.286	.393	.318	.289	.460	.317	.223	.383	.316	.301
PB3/4	.476	.280	.244	.490	.275	.235	.538	.285	.177	.420	.292	.288
PB3/6	.525	.262	.213	.555	.239	.206	.571	.275	.154	.450	.282	.268
PB3/8	.635	.207	.158	.585	.223	.192	.591	.271	.138	.476	.272	.252
PB3/10	.664	.191	.145	.586	.222	.192	.607	.263	.130	.480	.274	.246
PB3/12	.679	.185	.136	.608	.217	.175	.613	.271	.116	.490	.266	.244
P4/2	.360	.283	.357	.386	.304	.310	.....	.....	.....	.384	.296	.320
P4/4	.373	.241	.386	.400	.260	.340	.387	.271	.342	.356	.288	.356
P4/6	.390	.217	.393	.402	.232	.366	.393	.246	.361	.368	.263	.369
P4/8	.396	.197	.407	.420	.210	.370	.391	.227	.382	.425	.227	.348
P4/10	.401	.172	.427	.393	.185	.422	.370	.202	.428	.407	.204	.389
P4/12	.395	.147	.458	.378	.160	.462	.352	.179	.469	.393	.190	.417
RP4/2	.309	.280	.411	.364	.299	.337	.329	.332	.339	.334	.312	.354
RP4/4	.298	.235	.467	.325	.253	.422	.320	.290	.390	.287	.281	.432
RP4/6	.271	.195	.534	.284	.210	.506	.307	.252	.441	.....	.....	.....
RP4/8	.268	.177	.555	.271	.201	.528	.304	.240	.456	.232	.226	.542
RP4/10	.235	.154	.611	.235	.172	.593	.291	.217	.492	.200	.191	.609
RP4/12	.216	.134	.650	.190	.148	.662	.274	.182	.544	.144	.168	.688


TRANSMISSION PERCENT
R = REFLECTANCE PERCENT
N R R R

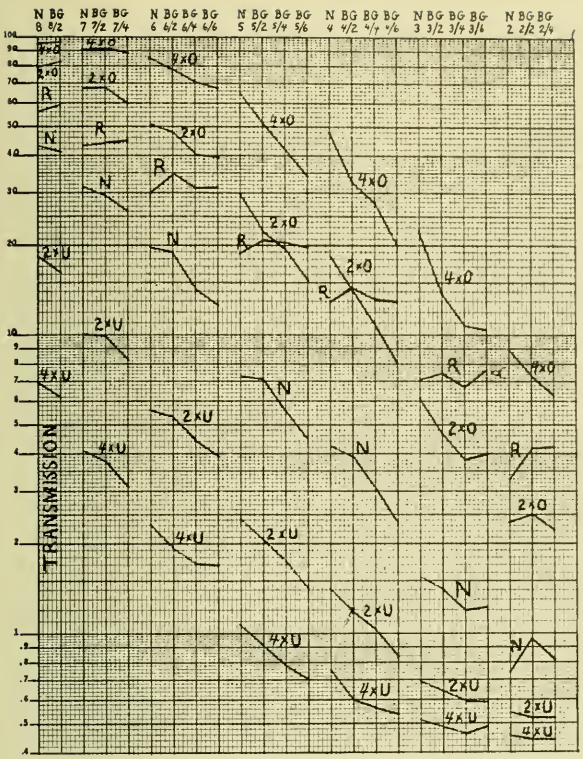


Chart II. Munsell Blue-Green (BG).

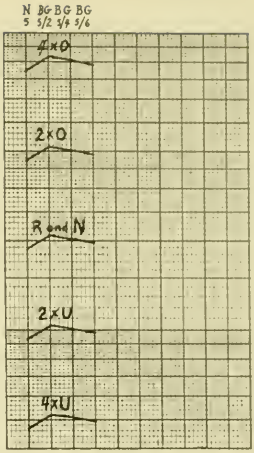


Chart III

Example of Ideal Exposure Relationship. Blue-Green 5/2—5/6.

Yellow

Hue:

Normal: The higher values and chromas are somewhat too red. The lower values are slightly too greenish. Medium values are excellent.

Overexposure: The same relationship as Normal

Underexposure: The same as Normal

Value:

Proportionate to original

Chroma:

Normal: Excellent. Stands under- and overexposure well.

Rendition Rating: Hue 9. Value 2. Chroma 7.

Green - Yellow

Hue:

Normal: In the higher values hue is distinctly yellower than original. Below value 7, hue is well rendered.

Overexposure: Colors go strongly to yellow in values 7 and 8. Below 7 value, hue is maintained correctly.

Underexposure: In value 7, 8 hue is greener than Normal, but still yellower than original. In lower values, hue is maintained.

Value:

Proportionate to original

Chroma:

Normal: Good

Stands over- and underexposure

Rendition Rating: Hue 10. Value 1. Chroma 8.

Green

Hue:

Normal: Hue very good for all values and chromas

Overexposure: Remains constant

Underexposure: Remains constant

Value:

Tends considerably toward underexposure

Chroma:

Normal: Chroma is lower than original in all cases. The dark (low values) colors are more noticeably off in purity—even overexposure fails to restore their lost purity.

This hue does not stand over- or underexposure as well as green-yellow.

Rendition Rating: Hue 6. Value 9. Chroma 10.

Blue - Green

Hue:

Normal: Hue very good

Overexposure: Remains constant

Underexposure: Remains constant

Value:

Tends toward underexposure

Chroma:

Chroma somewhat lower than original in all cases. This hue does not stand underexposure well. Somewhat superior to green on overexposure.

Rendition Rating: Hue 5. Value 10. Chroma 9.

Blue

Hue:

Normal: Slightly redder than original

Overexposure: Bluer than Normal and about equal to original

Underexposure: Slightly redder than Normal.

Value:

Tends toward underexposure

Chroma:

Normal: Excellent

Overexposure: Holds up well

Underexposure: Holds up well

Rendition Rating: Hue 7. Value 7. Chroma 4.

Purple - Blue

Hue:

Normal: Very good

Overexposure: Remains Constant

Underexposure: Remains constant

Value:
Tends slightly toward underexposure
Chroma:
Normal: Good
Overexposure: Holds up well
Underexposure: Holds up well
Rendition Rating: Hue 3. Value 3. Chroma 5.

Purple

Hue:
Normal: Excellent
Overexposure: Excellent
Underexposure: Excellent
Value:
Tends slightly toward overexposure
Chroma:
Normal: Very good
Overexposure: Good
Underexposure: Very good
Rendition Rating: Hue 2. Value 4. Chroma 3.

Red - Purple

Hue:
Normal: Excellent
Underexposure: Excellent
Overexposure: Excellent
Value:
Tends very definitely toward overexposure
Chroma:
Normal: Excellent
Overexposure: Very good
Underexposure: Excellent
Rendition Rating: Hue 1. Value 8. Chroma 2.

Use of Photocell for Ground Glass Readings

Table (V) is similar to Table (II) and in addition has a column indicating the strength in footcandles on the ground glass for the same colors under identical conditions.

For example, R4/4 reflects under standard illumination 334 f.c. On the ground glass it reads, at f:16, on the full opening of the 1-15/16″ dia. Electrocell, .59 f.c. Whenever this color reads .59 f.c. on the ground glass, it must therefore be exposed at f:16 and 1/5 second, or equivalent, without any further consideration, in order to produce a Normal rendition.

The advantage of this ground glass column is evident in photomicrography and in other types of exposure in which the subject cannot be approached directly for a reading.

Practical Applications

In order to apply the above system to ordinary practice it is useful for the photographer to be able to judge the average Value of the scene to be photographed. Reference to or familiarity with the Munsell Value scale will enable him to estimate this with considerable accuracy.

Table (V)

Reflection in Footcandles for Home Value Levels. 10 Hues at f:16—1/5 second.

Ground Glass Readings in Footcandles for Home Value Levels. 1/5 second regardless of other conditions.

Munsell Notation	For "Normal" Rendition at f:16-1/5 sec	For "Normal" Renditionat 1/5 sec	Munsell Notation	For "Normal" Rendition at f:16-1/5 sec	For "Normal" Renditionat 1/5 sec
	Reflection Footcandles	Ground-Glass		Reflection Footcandles	Ground-Glass
N/9	1584 f.c.	2.82 f.c.	G5/2	386	.69
N/8	1255	2.23	G5/4	364	.65
N/7	959	1.70	G5/6	346	.62
N/6	665	1.18	G5/8	340	.61
N/5	414	.73			
N/4	286	.51	BG5/2	461	.82
N/3	155	.27	BG5/4	450	.80
N/2	73.0	.13	BG5/6	443	.79
N/1	39.6	.07			
R4/2	292	.52	B4/2	314	.56
R4/4	334	.59	B4/4	352	.63
R4/6	354	.63	B4/6	307	.55
R4/8	413	.74	B4/8	296	.53
R4/10	465	.83			
R4/12	496	.88	PB3/2	123	.22
R4/14	516	.92	PB3/4	141	.25
			PB3/6	140	.25
YR6/2	714	1.27	PB3/8	201	.36
YR6/4	709	1.26	PB3/10	214	.38
YR6/6	730	1.30	PB3/12	214	.38
YR6/8	755	1.34			
YR6/10	761	1.35	P4/2	303	.54
YR6/12	781	1.39	P4/4	319	.57
			P4/6	342	.61
Y8/2	1230	2.19	P4/8	380	.68
Y8/4	1220	2.17	P4/10	390	.70
Y8/6	1204	2.14	P4/12	461	.82
Y8/8	1220	2.17			
Y8/10	1220	2.17	RP4/2	348	.62
Y8/12	1140	2.03	RP4/4	362	.64
			RP4/6	397	.71
GY7/2	865	1.54	RP4/8	416	.74
GY7/4	865	1.54	RP4/10	503	.90
GY7/6	860	1.53	RP4/12	535	.95
GY7/8	865	1.54			
GY7/10	822	1.46			

Table (VI)

Footcandles

2/ 5 sec.	f:5.6	f:8	f.11	f:16	f:22	f:32	f:45
1/10 sec.	f:2.8	f:4	f:5.6	f:8	f:11	f:16	f:22
1/ 5 sec.	f:4	f:5.6	f:8	f:11	f:16	f:22	f:32
N/9	99 f.c.	198 fc.	396 fc.	792 fc.	1584 fc.	3168 fc.	6336 fc.
N/8	79	157	314	627	1255	2510	5020
N/7	60	119	239	479	959	1918	3836
N/6	41	83	166	333	665	1330	2660
N/5	26	52	104	207	414	828	1656
N/4	18	36	72	143	286	572	1144
N/3	10	20	39	78	155	310	620
N/2	4.5	9	18	37	73	146	292
N/1	2.4	4.8	9.5	19	39	78	156

A Value reflecting the footcandles in Table (VI) will reproduce Normal when exposed at 1/5 second and the stop indicated. Stops for 2/5 sec. and 1/10 sec. are also included. These footcandle intensities are to be used for neutral colors (grays). Factors to correct for the various hues are given in Table (VII). To convert a hue to Neutral Value, the meter reading is divided by the Chroma Factor in Table (VII).

Table (VII)

Chroma Factors (to Neutral)
*Chroma Steps for Photrix Photometer**

Home Value Level	2	4	6	8	10	12	14
R	1.02	1.17	1.24	1.45	1.62	1.73	1.80
YR	1.07	1.06	1.10	1.13	1.14	1.17	.....
Y	.98	.97	.96	.97	.97	.91	.....
GY	.90	.90	.90	.90	.86	.....	.....
G	.93	.88	.84	.82	.....	.....	.....
BG	1.11	1.09	1.07	.....	.....	.....	.....
B	1.10	1.23	1.07	1.03	.....	.....	.....
PB	.79	.91	.90	1.29	1.38	1.38	.....
P	1.06	1.11	1.20	1.33	1.36	1.61	.....
RP	1.22	1.26	1.39	1.45	1.76	1.87	.....

Example for Using Tables (VI), (VII)

After studying the colors in a scene, it is decided that the average Value is 7. This is determined either by experience or comparison with Munsell Color Chart. Further consideration indicates the average color to be a buff or notation YR7/4. Our Photrix meter reads 200 f.c. Reference to Table (VII) shows a Chroma Factor for YR at Chroma 4 at 1.06. We therefore divide 200 f.c. by 1.06 to get the Neutral equivalent—188 f.c. Consulting Table (VI) we find at Value 7, 119 f.c. calls for f:5.6 and 239 f.c.

* The chroma steps are not likely to throw the reading of the meter off appreciably except in the case of Red, Purple and Magenta, as can be seen by an examination of Table (VII). Only in the case of these colors does the factor depart importantly from 1.00.

calls for an exposure at f:8. Since 188 f.c. is approximately half-way between these readings the exposure for Normal rendition should be between f:5.6 and f:8 at 1/5 second.

Where great refinement in exposure is necessary, the complete set of charts must be consulted. For reasonably accurate work the method used in the above example is sufficient.

A complete familiarity with Hue, Value and Chroma, and a rough memorization of the charts (VI) and (VII) will enable the photographer to interpret his meter to the best advantage where quick and accurate decisions are necessary.

Practical Advice

Ia. When to read meter directly without reference to correction factors:

When colors are of low chroma (0-2) and of medium value (4-6).

Ib. When not to read meter directly:

When colors are high in chroma and/or very light or dark.

IIa. When to use gray card:

For flat objects, such as, paintings, posters, walls or any other object not containing heavy shadows.

IIb. When not to use gray card:

1. When illumination is coming from subject itself or behind subject, such as, lamps, colored glass, windows, etc.

2. When part or all of the subject is illuminated by a source which does not affect the gray card.

IIIa. When to make full use of Munsell data and the principles recorded here:

1. Whenever an important picture is to be made where some preparation is possible.

2. For photomicrography or in special cases where only the ground glass can be read.

IIIb. When not to make full use of Munsell data:

1. When you must take hit and run candid shots. (Yet even here the principles may be useful.)

2. When your familiarity with the subject enables an accurate exposure determination to be made based on experience.

H and D Curves with Intensity Variable, Time Constant[7] (See Chart IV.)

Since Kodachrome is grainless the Callier Q factor[8, 9] is unity, therefore no special precautions were needed to determine diffuse and spectral densities as in the case of grainy plates or films. The information for construction of these curves was obtained directly from the transmission charts and the ground glass intensity table.[10] It is interesting to observe that the gamma or slope of the curve for Red is less than for Neutral or Green.

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[7] Jones, Loyd A. Photographic Sensitometry, p. 26.
[8] Jones, Loyd A. Photographic Sensitometry, p. 57.
[9] Callier, A. Phot. J., 49 (n.s. 33) (1909), p. 200.
[10] Dudley, Beverly. Photo Technique, January, 1940, p. 32. A method is described for using a simple exposure meter as a densitometer for deriving characteristic curves.

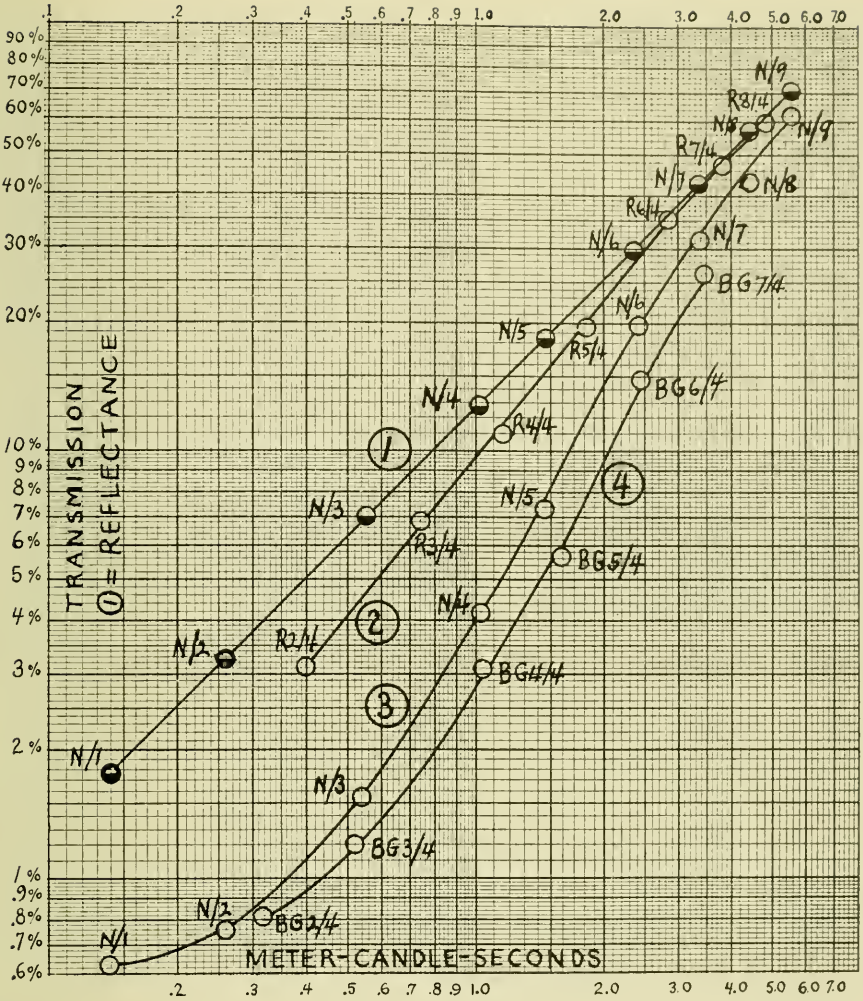
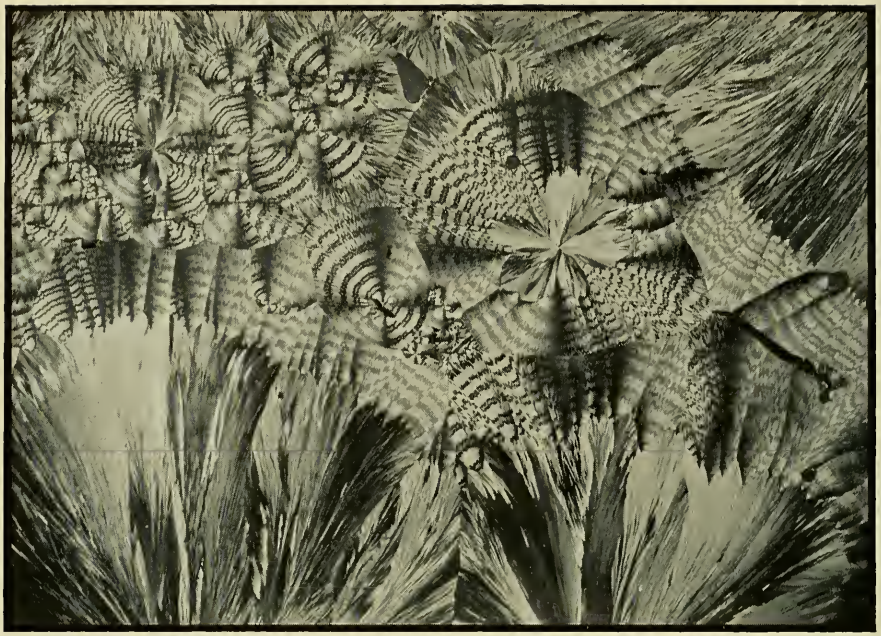


Chart IV. H &D Curves

1. *Munsell Neutral Values 1-9, Reflection on original.*
2. *"Normal" Reds Chroma 4, Values 2-8.*
3. *"Normal" Neutrals, Values 1-9, Transmission on Kodachrome.*
4. *"Normal" Blue-Greens Chroma 4, Values 2-7, Transmission on Kodachrome.*



Hippuric Acid X25 *Figure 12.* *George H. Needham, F.R.M.S.*

Example of Ground Glass Reading in Photomicrography

Figure 12 is a monochrome reproduction of a study made in polarized light on 5" x 7" Kodachrome. The reading on the ground glass was .35 footcandles. Using the principles of the gray card it was assumed that this reading was equivalent to an average three dimensional scene (see "Definition of Average Brightness" page 551, Camera Craft, November, 1940) reflecting 12 per cent or having a Munsell Value of 4. Since all colors were represented in fairly equal parts the combined result was roughly equivalent to a neutral gray. Table V shows that a neutral gray of Value 4 under standard light conditions necessary to produce a "Normal" positive at 1/5 second and f:16 has a reading of .51 footcandles on the ground glass. Since the ground glass in this case read .35 footcandles it was evident that a slightly greater exposure than 1/5 second was necessary—1/5 sec. $\times \frac{.51 \text{ footcandles}}{.35 \text{ footcandles}} = .291$ *sec. An exposure of 3/10 was therefore given.*

Since Kodachrome is a positive, transmission on a logarithmic scale was substituted for density on a linear scale as is customary for negatives. The usual direction of rise of the characteristic curve from right to left was thus maintained; otherwise, as in the case of all positives, the curve would slant downward from left to right.

It is the earnest hope of this writer that the time is not far off when color specifications and notations will be as familiar and useful to users of color as musical notes are to musicians. Perhaps color photography will lead the way.

The possibilities of Kodachrome have not been exploited beyond a mere scratching of the surface. Below the surface lies a treasure which will be discovered by the photographers who are armed with a knowledge of sensitometry and colorimetry.[11, 12]

[11] Hardy, A. C. Handbook of Colorimetry.

[12] Nickerson, Dorothy. Use of I.C.I. Tristimulus Values in Disk Colorimetry. U. S. Dept. Agriculture Bull., May, 1938. A translation of the objective standards: dominant wavelength, brightness and purity, to the subjective Munsell Notations: Hue, Value and Chroma.

Making Lantern Slides

Jack Wright

Part III

MANY amateur photographers do not know the versatility of lantern slides. They are surprised to learn that the great lantern slide makers work not only with black tones of varying degrees of warmth but make slides in several colors, some of them of great beauty. The making of such slides will now engage our attention.

There are several ways in which slides having color are made. One is by alteration of the developer, so as to produce a slide that is not black but brown, red or some other color. Another method is by toning the developed slide in a toning bath. A third method is to dye the slide with one of several dyes. All these methods will be described.

The key to securing colored slides by development lies in the fact that short exposures give cold, black hues while longer exposures, followed by restrained development, give slides of warmer tone. By this latter means tones from warm black, through sepia to red, may be obtained—most of them exceedingly pleasing.

For the production of these tones, Mr. Frank R. Fraprie, in his book on the making of slides, recommends the following Metol-Hydroquinone developer:

Metol-Hydroquinone

STOCK SOLUTION A

	Avoirdupois	Metric
Metol	16 grains	2 grams
Sodium Sulphite (dry)	80 grains	11 grams
Sodium Carbonate (dry)	320 grains	42 grams
Hydroquinone	16 grains	2 grams
Potassium Bromide	16 grains	2 grams
Water to make	16 ozs.	1000 ccm.

The ingredients should be dissolved in the order given.

STOCK SOLUTION B

Ammonium Bromide	1 oz.	60 grams
Ammonium Carbonate	1 oz.	60 grams
Water to make	15 oz.	1000 ccm.

This developer will produce slides ranging from black to red, according to the following table, which was first published by Wellington and Ward of Elstree, England, and is reproduced by Mr. Fraprie in his book:

Color	Exposure Normal	Developer A Ounces	Developer B Drams	Development time at 65° F. in seconds
Black	Normal	1		20
Warm Black	N. x 1½	1 plus	2	30
Brown	N. x 2	1 plus	2	40
Warm Sepia	N. x 3	1 plus	3¼	50
Purple	N. x 4	1 plus	4	60
Red	N. x 6	1 plus	5	70

With average negatives, a Watkins factor of three is approximately correct when using this formula. However, the best method is to ascertain "normal" exposure by making test slides until a satisfactory black slide is produced. This "normal" exposure may then be inserted in the table and the exposures for producing the other colors may be calculated.

The use of the Pyro-Ammonia developer will also produce tones of attractvie browns and blacks. The formula follows:

Pyro-Ammonia Developer

STOCK SOLUTION A	Avoirdupois	Metric
Pyro	48 grains	6.25 grams
Sodium Sulphite (dry)	192 grains	25 grams
Citric Acid	5 grains	0.625 grams
Water to make	16 ozs.	1000 ccm.

Dissolve the sulphite and citric acid in 12 ounces of water; then add the pyro and bring the total volume to 16 ounces.

STOCK SOLUTION B		
Ammonium Bromide	64 grains	10.5 grams
Liquor Ammonia (0.880)	48 grains	6.25 grams
Water to make	16 ozs.	1000 ccm.

Equal parts of A and B should be employed. If the color is not brown enough add more ammonium bromide from a 10 per cent stock solution, making whatever increase in exposure is necessary. The above formula will require about five times the ordinary exposure used with the amidol or hydroquinone developers to produce black slides.

Before taking up the production of colored slides by the use of dyes and by employing uranium, copper, etc., we will discuss briefly the thiocarbamide process. This complicated process is said by its devotees to yield slides that are approached by no others in beauty. It is admittedly "tricky," however, and should only be attempted by the experienced slidemaker. The formula for the thiocarbamide developer is as follows:

Thiocarbamide Developer*

STOCK SOLUTION A	Avoirdupois	Metric
Metol	35 grains	4.5 grams
Sodium Sulphite (dry)	175 grains	25 grams
Hydroquinone	18 grains	2.3 grams
Sodium Carbonate (dry)	162 grains	22 grams
Water	16 oz.	1000 ccm.
STOCK SOLUTION B		
Ammonium Carbonate	700 grains	92 grams
Ammonium Bromide	700 grains	92 grams
Water	16 oz.	1000 ccm.
STOCK SOLUTION C		
Thiocarbamide	53 grains	6.7 grams
Ammonium Bromide	18 grains	2.3 grams
Water	16 oz.	1000 ccm.

The following proportions are recommended for making slides of different colors:

For warm brown tones.....use 14 parts of A, 1 of B and 1 of C.

* Thiocarbamide is also known as Thiorea.

For blue-gray tones..... use 12 parts of A, 3 of B and 1 of C.
For warm black tones..... use 10 parts of A, 5 of B and 1 of C.

The smoky blue tone occasionally obtained with the second combination is much esteemed, particularly in England. The developer should be used at 70 degrees Fahrenheit. The development factor is six. The color depends on the exposure. Assuming that the exposure for black tones is 10 seconds, with an average negative, the exposure for brown tones will be from 50 to 100 seconds. For tones in blue-gray the exposure will be from 90 to 120 seconds and for violet tones from 10 to 15 minutes. Intermediate tints may be secured by varying the proportions given above.

Temperature is quite important in the thiocarbamide process and, if necessary, should be maintained by placing the tray of developer in a larger tray containing water, which can be maintained so as to hold the temperature of the developer at 70. It is also important to select one brand of slide and stay with it, as there is some variation, from one brand to another, in the way they react to this process.

Workers in the thiocarbamide process advise the beginner to make a series of slides covering all possible variations in color as shown by the table. If data is kept on each slide, the making of the series should prove highly educational.

Another method of making slides, which is a favorite with some workers, is physical development with silver nitrate. This produces a beautiful blue-black tone and control of the tone quality of the slide is exceptionally complete, a short exposure and long development producing a slide of high contrast from a low contrast negative, while a long exposure and short development will produce a slide of good contrast from a negative that is over-contrasty. The flexibility of the process is one of its finest characteristics. The formula for the developer follows:

Acid Metol Developer

	Avoirdupois	Metric
Metol	44 grains	5 grams
Citric Acid	88 grains	10 grams
Glacial Acetic Acid	½ oz.	25 ccm.
Water to make	10 ozs.	500 ccm.

Silver Nitrate Solution

Silver Nitrate	44 grains	10 grams
Water	1 oz.	100 ccm.

Unless the ordinary city water supply is quite free of impurities it will be well to use distilled water. Immediately before use, add one dram of the silver nitrate solution to nine drams of the acid metol solution. This is the equivalent of three ccm. of the silver nitrate solution and 27 ccm. of the acid metol solution. It is sufficient for one slide. Exposure, which is four to eight times the normal for black slides, should be learned by making test slides. Development is continued until the desired degree of contrast is reached, the contrast increasing with increased development.

Still another method of toning slides is by the use of inorganic salts, through which slides colored blue, red, brown, etc. may be secured. To get tones ranging from brown to red, uranium may be used. The formula is as follows:

	Avoirdupois	Metric
Uranium (Uranyl) Nitrate	35 grains	2.5 grams
Potassium Oxalate	35 grains	2.5 grams
Potassium Ferricyanide	15 grains	1 gram
Ammonium Alum	85 grains	6 grams
Hydrochloric Acide 10%	1¼ drams	5 ccm.
Water to make	32 ozs.	1 liter

A 10 per cent solution of hydrochloric acid is made by taking 10 parts of the concentrated acid, by volume, and adding water slowly to make 100 volumes. This developer should be a clear, pale yellow. It is light sensitive and should be stored in the dark. This and the iron toner, given later, produce a marked intensification of the image, which intensification increases with increased time of toning. The maximum effect will be reached in about 10 minutes of toning. It is possible to obtain intermediate tones by withdrawing the slide at a shorter interval. The following table, given by the Eastman Company, gives the type of slide which should be used, the time of toning and the resulting color:

Nature of Slide	Time of Toning	Color
Normal	2 minutes	chocolate
Medium	5 minutes	warm brown
Thin	10 minutes	reddish brown

After the slide is toned, wash for about 10 minutes. Longer washing may dissolve part of the tone.

Attractive sepia tones may be obtained by the use of a sodium sulphide toner, the formula for which is as follows:

Sodium Sulphide Toner

STOCK SOLUTION A	Avoirdupois	Metric
Potassium Ferricyanide	1 oz.	30 grams
Potassium Bromide	½ oz.	15 grams
Water to make	32 ozs.	1 liter
SOLUTION B		
Sodium Sulphide (crystal)	40 grains	2.8 grams
Water to make	32 ozs	1 liter

If fused Sodium Sulphide is used, use one-third the quantity.

The well-washed slide should be thoroughly bleached in A and washed for five minutes. It is then immersed in B for about two minutes, until thoroughly toned. It is then washed for 10 to 15 minutes. Best results are obtained at 70 degrees F. The tone becomes warmer and less contrasty at 75°. Beyond that it is not advisable to go.

Blue tones may be secured by the use of iron. Following is the formula:

Iron Toner

	Avoirdupois	Metric
Ammonium Persulphate	7 grains	0.5 grams
Iron and Ammonium Sulphate (Ferric Alum)	20 grains	1.4 grams
Oxalic Acid	45 grains	3 grams
Potassium Ferricyanide	15 grains	1 gram
Ammonium Alum	75 grains	5 grams
Hydrochloric Acid 10%	¼ dram	1 cc.
Water to make	32 ozs.	1 liter

The method of mixing this bath is very important. Each of the chemicals should be mixed separately in a little water. They should then be combined in the order given and the whole diluted to the required volume. The bath should be a clear, pale yellow.

The slide should be bathed for three to 10 minutes until the desired tone is obtained, then washed for 10 to 15 minutes until the highlights are clear except for a slight yellow coloration, which should not be noticeable on projection. A normal slide, toned three minutes, will be light blue,

while a thin slide, toned 10 minutes, will be dark blue.

An even wider range of colors is obtainable by coloring slides with various dyes. In order to prepare the slide to accept the dye, it must be placed in a mordanting bath, which is prepared according to the following formula:

	Avoirdupois	Metric
Uranium (Uranyl) Nitrate	114 grains	8 grams
Oxalic Acid	57 grains	4 grams
Potassium Ferricyanide	57 grains	4 grams
Water to make	32 ozs.	1 liter

The chemicals should be dissolved separately in a small quantity of water. Add the oxalic acid solution to the uranium nitrate solution and finally add the potassium ferricyanide solution. Use one part of the stock solution to four parts of water. The solution should be stored in a dark place.

The slide should be immersed until a slight chocolate color is noticed. When the bath is new, this will take from 1½ to 2 minutes. As the bath grows older the time will be longer. As soon as this slight brown tone is noticed, remove the slide and wash it for from 10 to 15 minutes, until the highlights are clear of yellow stain. The slide is then ready to be dyed.

The following dyes, all of which are manufactured by the National Analine and Chemical Company, New York City, may be used for dyeing slides:

Safranine A	Red
Chrysoidine 3R	Orange
Auramine	Yellow
Victoria Green	Green
Methylene Blue BB	Blue
Methyl Violet	Violet

The Eastman Company suggests that all the dyes (except methyl violet), be compounded according to the following formula:

	Avoirdupois	Metric
Dye	3 grains	0.2 gram
Acetic Acid 10 per cent.*	1¼ drams	5 cc.
Water to make	32 ozs.	1 liter

The dye should be thoroughly dissolved in hot water and filtered. Then add the acid and dilute with cold water. With methyl blue, use one-half the quantity of dye in the above formula. Immerse the slide in the dye bath for from two to 15 minutes, according to the color desired. A short immersion will give a slightly colored image, while longer immersion will give a strongly colored image. In case the slide is over-dyed, some of the dye may be removed by immersing in a 0.2% solution of ammonia; then rinse before drying. If, after dyeing 15 minutes, the slide has not picked up enough dye, it may be re-immersed in the mordanting solution, washed and re-dyed. After being dyed, the slide should be stood in a rack to dry.

Intermediate dye tones may be secured by mixing the dye solutions, or dipping the slide first in one solution, then in another. It should be noted that all dyes intensify the image, so that a thin slide will produce

* Note: To convert glacial acetic acid to 10 per cent acetic, take one part of glacial acetic acid and nine parts of water. To convert 28 per cent acetic to 10 per cent acetic, take 1 part of 28 per cent acetic and two parts of water.

normal density, when dyed, while a normal slide becomes a deeply colored slide, when dyed.

Before closing the subject of coloring slides, a word or two regarding hand-coloring may be said. The emergence of Kodachrome, Dufaycolor and other natural color films, is largely displacing slides that are hand-colored. However, the person who uses water colors well can obtain beautiful effects by coloring his slides with the Velox transparent water colors of the Eastman Company, or similar colors put out by other concerns. The primary colors may be blended to produce any hue, and the result, if the work is carefully done, will be very attractive.

Another method of improving some slides is by printing in clouds in "bald" skies, which are no more attractive in slides than in prints. The best method of doing this is to print the clouds on one slide, print the rest of the picture on another, and then bind them together.

The sky portion of the slide containing the landscape should be clear glass. This is easily accomplished by painting the negative with opaque. The foreground of the slide which contains the clouds must be clear glass. This is achieved by using the landscape slide as a mask. To make such a mask, print a landscape slide very dark. Then use this as a mask in printing the cloud slide. This will leave the foreground of the cloud slide practically clear glass. When the landscape slide is combined with the cloud slide, the two give a very attractive result.

Retouching and spotting of slides is an important step, because slight pinholes or other imperfections in the slide show up exaggeratedly when thrown on the screen. Retouching should be done on a retouching stand with the slide illuminated from the rear. A pencil, sharpened to a needle point, or a spotting brush and spotting color may be used. For slides that have been toned, water-colors of the appropriate tint may be employed.

The final steps in completing the slide are varnishing, masking, marking and binding. Object of varnishing the slide is to prevent the emulsion from absorbing moisture in damp weather, which moisture may condense on the covered glass when the slide is heated during projection. The slide should be heated to drive out all moisture, then given a coat of Eastman lantern slide varnish, or other similar varnish, which is entirely colorless.

Many expert slide makers cut a different mask for each slide, using a sharp knife, or razor blade, and black paper. This is in order to include just that portion of the picture which affords the best composition. Other slide-makers prefer to use the masks which are sold commercially for both sizes of slides.

On the mask may be written or printed data concerning the slide, such as its title, location where taken, data on exposure, light, etc. White ink is used. In the case of the two-inch slides, because of constricted space, a number may be printed referring to a notebook, in which complete data is kept.

Binding is best done with Scotch tape or the other adhesives sold for the purpose. From the roll of adhesive, cut off enough to go clear around the slide. In the case of the two-inch slides this will be eight inches. For the larger slides, 14½ inches will be used.

Lay the adhesive, sticky side up, on a blotter or a few thicknesses of newspaper. Press the cover glass and slide down at one end of the adhesive.

Figure 2. A small "vise," like that shown in the above illustration is a great aid in slide-making. Also shown are a camel's hair brush, cover glasses and 35 mm. masks sometimes used with the 2 inch slides.

Press the adhesive firmly against the edges and sides of the glass.

Then "roll" the slide over, so that the adhesive is affixed to a second edge, and repeat until you have gone around all four sides, being careful to press the adhesive firmly against both edges and sides of the glass. Some makers press the adhesive firmly at the corners, allowing it to fold into a tiny triangle at each corner. Others cut the adhesive at each corner and fold it so it overlaps.

Small "vises" for holding the slides and cover glasses while being bound, may be purchased cheaply and greatly facilitate the operation. One of these is shown in Figure 2, with cover glasses, camel's hair brush, and the 35 millimeter masks which some slide makers use with the two-inch slides.

The final step in completing the slide is to place a sticker at one corner. To determine which corner this is, hold the slide toward the light, right side up, and with the picture turned the right way. Attach the sticker at the lower left hand corner. The sticker will then come beneath the right thumb of the operator, as he places the slide in the projector.

Cinema Section

Edited by

William A. Palmer

Good Sound For Educational And Commercial Films

THE use of 16 millimeter sound-on-film projectors for commercial films is practically universal, and the sound film is being used very extensively in classrooms, although silent educational films still have a decided usefulness. However, it cannot yet be said that the sound reproduction in all cases of commercial and educational films is ideal. In fact, many times there are a great many complaints, due to causes which the layman cannot readily evaluate and which create a good deal of confusion and difference of opinion as to the cause of the difficulty.

There are three general factors which can affect the quality of sound reproduction on a film. First is the inherent quality of the recording on the film; second, the quality of sound reproduction of the projector; and, third, the acoustics of the room in which the sound is being reproduced. Each of these factors can be a very decided influence in enhancing or impairing sound quality. So that the users of 16 millimeter sound films may have some knowledge of these factors, we shall try to give a not too technical evaluation of them.

As a preface to this discussion, we wish to point out that in our opinion the most desirable characteristic of all 16 millimeter sound is that the voice should have the greatest intelligibility. This requires in some instances that the sound quality, as heard by the audience, depart decidedly from "natural' reproduction. In some cases, the quality of music reproduction is important, at which time the requirement of "naturalness" may be slightly different from those which yield the greatest intelligibility of voice.

Quality of Film Recording

The first of the three general factors, the inherent quality of the sound recording for the greatest intelligibility, is one which generally is not under the control of the user of the film. It nevertheless is perhaps the most important of the factors controlling satisfactory sound reproduction. Here more than in any of the other factors is a case where a departure from strict "naturalness" in favor of greater intelligibility is in order.

At the outset it must be recognized that reproduction of 16 millimeter films for commercial and classroom work is decidedly a specialized case. It is quite a different problem from that of the reproduction of radio programs in the home or of theatrical talking pictures in theaters. In both of the latter cases, the condi-

tions are both decidedly favorable to reasonable intelligibility of reproduced sound. In both cases there is a freedom from disturbing noise, and acoustical conditions are usually not too unfavorable. In the reproduction of 16 millimeter sound films, however, we invariably have a certain amount of background noise created by the projector, plus unfavorable acoustical conditions of the typical classroom or meeting room. Most of the time, commercial films are reproduced in the special dining rooms of hotels, lodge rooms, directors' rooms, and public auditoriums, all of which almost invariably have hard ceilings and walls, are rectangular in shape, and are bare of furnishings. Likewise, classrooms invariably have blackboards on two or three sides, hard plaster walls elsewhere, and a hard ceiling. These will be discussed further a little later.

These conditions of competing noise and acoustical conditions of a "live" characteristic require a sound track recorded in a manner different than that considered ideal for theatrical presentation. There are two ways in which the best sound track for 16 millimeter reproduction differs from the ordinary theatrical recording. The first is *increased response of high frequencies*, and the second is restricted volume range. To explain more fully the need for increased response for high frequencies, it should be mentioned that the voice has two general classes of vibrations which must be recorded on the film. One class consists of the vowels which are of comparatively low frequency, and the other class is made up of sibilants and explosives which create clear and crisp articulation of speech if they can be heard well. Their absence makes for badly jumbled and inarticulate speech. The vowel sounds are important in maintaining naturalness of quality, but they are comparatively easy to maintain under any recording conditions. It happens, though, that under conditions of reproduction in bare rectangular rooms, the reverberations of these rooms causes an amplification of vowel sounds while the sibilants and explosives are not amplified at all. This gives rise to the typical "boomy" quality of speech in a resonant room, and since the high frequencies are reduced with respect to the vowels, speech becomes difficult to understand.

The recording engineer who realizes these factors and who is recording a film primarily for reproduction in commercial and educational fields will make the sound track with considerably greater than normal reproduction of sibilants in the voice quality. A properly made sound track of this sort will sound excessively strong in sibilants when reproduced in a sound-proof studio or other room with ideal acoustical conditions. Conversely, a film which may sound entirely natural and intelligible under these good acoustical conditions may be quite unsuitable for use under average commercial reproducing conditions. Unfortunately, this is not a point that is recognized by all producers of sound films. Too often the recording is made to sound well in the preview theater but when used in the field is not satisfactory.

The restricted volume range requirement is obvious when one considers that the noise of the average projection machine is a background above which any sound must be amplified in order to be heard. Therefore, the typical case of background music underneath the voice of a commentator must be made considerably louder with respect to the voice than is the case when a film is intended for theatrical presentation. In the theater, all the noise of the projector is eliminated and the volume of background music can be dropped to a level a great deal lower than that which is usable for a commercial or educational film.

As stated above, these factors of inherent quality in the sound recording are

not directly under the control of the users of films, although certain faults in the recording can be partially compensated for by the user in proper manipulation of the tone control of the projector.

Reproduction Characteristics of the Projection Equipment

Satisfactory reception of a commercial or educational film will depend very largely upon the quality and condition of the projection equipment used. Unfortunately, there have been a great many different reproduction characteristics in 16 millimeter motion picture projectors. Different manufacturers have had different ideas from time to time as to just what sort of response their amplifiers should have, and different models of the same manufacturer frequently sound entirely different when playing the same film. This situation makes it very difficult for the recording engineer to record a sound track which will be of first quality on all projectors. A typical situation which causes the layman to wonder "what is right" is that frequently the less expensive projectors of a certain manufacturer will give better results under average conditions than the more expensive model of that same manufacturer. The explanation here is that the cheaper projector is equipped with a smaller loud speaker having less bass response and therefore less "boominess" in a reverberant room.

Outside of taking advantage of this seeming paradox of a smaller loud speaker in a room having poorer acoustics there is another improvement that could be made in many instances to prevent reverberations. This is the use of a loud speaker having what is known as an exponential horn in place of the usual loud speaker case. This type of loud speaker unit, when placed correctly, can direct the sound toward the audience and away from the hard reflecting surfaces of the room. This type of loud speaker unit is used extensively in public address work but for some reason is not considered by 16 millimeter projector manufacturers. However, in extreme cases of poor sound quality a horn type speaker could be connected to any projector.

Acoustics of the Room for Sound Reproduction

In discussing the foregoing two factors governing sound intelligibility, we have constantly referred to acoustic conditions as prompting a need for certain adjustment in film recording and projector equipment. If, however, the typical unfavorable acoustical conditions can be improved the optimum conditions in the other two factors become less critical. While the field of acoustics becomes very complicated in many architectural situations, the acoustics of the typical room in which movies are shown are controlled by fairly simple fundamentals.

The worst conditions that can be met are in a room of rectangular dimensions with hard surfaced walls, ceilings and floor. It is these opposite parallel surfaces of sound reflecting material such as plaster, cement and wood which cause the sound to bounce back and forth for some moments before its energies die away. This is exactly the condition which exists in most school rooms, private hotel dining rooms, and small assembly halls. Under such conditions a sound will take as much as four or five seconds to die away after its causing vibration has ceased. Under such conditions a voice can not be clearly understood, however good the reproduction, because one syllable fails to get out of the way before the next syllable is upon it. If the delivery of the speaker is extremely slow and deliberate, the intelligibility is improved greatly.

The remedy for these unfavorable acoustical conditions is the placing of sound-absorbing materials on the walls and rugs on the floors. If it is impossible

to cover the floor, it may be necessary to put sound-deadening material instead on the ceiling. The general principle is to eliminate opposite parallel walls of a hard reflective surface. It is, therefore, not necessary to have all walls treated with deadening material but is usually sufficient to have two adjacent side walls and either the floor or ceiling treated. The materials suitable for this purpose are varied, the simplest being curtains of monks' cloth or other inexpensive fabric. The various fibre acoustic boards are effective if left in an unpainted state.

Obviously, acoustical treatment of this sort is not a thing that one can do in a moment's notice for an occasional showing, but some such treatment in a classroom regularly used for film showing is certainly to be desired.

Club Notes

Forthcoming Exhibitions

Twenty-fourth Annual International Photographic Salon of the Camera Pictorialists of Los Angeles. Address Larry Lewin, Secretary, Los Angeles Museum, Exposition Park, Los Angeles, California. Closing date December 1st, 1940. Entry fee $1.00, limit 4 prints. January, 1941.

Annual Salon of the Photographic Society of Southern California. Address Jack Powell Salon Committee, 43 South Los Robles Ave., Pasadena, California. Closing date December 2, 1940. Entry fee $1.00, limit four prints. January 1 to 31, 1941.

The Springfield Salon (Third International). Address John Funaro, Director, 110 Rochelle Street, Springfield, Mass. Closing date December 6, 1940. Entry fee $1.00, limit four prints. January 1 to 18, 1941.

Third Annual Springfield International Salon of Photography. Address Salon Secretary, The Springfield International Salon of Photography. The George Walter Vincent Smith Art Gallery, Springfield, Mass. Closing date December 7, 1940. Entry fee $1.00, limit four prints. January 2 to 26, 1941.

Sixth Annual Des Moines International Salon of Photography. Address Walter Vittum, Salon Director, Y.M.C.A., Des Moines, Iowa. Closing date December 14, 1940. Entry fee $1.00, limit four prints. January 1 to 22, 1941.

First Annual North Dakota Salon. Address Salon Chairman, C. L. Olson, Minot Camera Club, Minot, N. Dakota. Closing date December 15, 1940. Entry fee $1.00, limit 4 prints. January 10 to 25, 1941.

Sixth Rochester International Salon. Address Earl C. Esty, Print Director, The Rochester Memorial Art Gallery, Rochester, N.Y. Closing date January 6, 1941. Entry fee $1.00, limit 4 prints. February 7 to March 7, 1941.

Eighth Wilmington International Salon of Photography. Address Mr. H. V. Maybee, Secretary, Salon Committee, 301 Delaware Trust Building, Wilmington, Delaware. Closing date January 10, 1941. Entry fee $1.00, limit 4 prints. February 3 to 24, 1941.

Eighth New York International Salon of Photography. Address Ira W. Martin, Station "Y," Box 48, New York, N.Y. Closing date January 31, 1941. Entry fee $1.00, limit 4 prints. March 6 to 28, 1941.

Third Valley of the Sun Photographic Salon. National (U.S., Canada, and Mexico.) Address V. R. Kiessling, 107 N. 5th St., Phoenix, Arizona. Closing date February 1, 1941. Entry fee $1.00, limit 4 prints. February 15 to March 15, 1941.

Third Annual Youngstown Camera Club Salon. Address R. M. Eickmeyer, Salon Director, 17 North Champion St., Youngstown, Ohio. Closing date February 10, 1941. Entry fee $1.00, limit 4 prints. February 15 to 23, 1941.

First Annual National Salon for Newspaper Subjects. Address U. Joseph Brown, Salon Director, O-T Camera Club, 304 Oklahoman Building, Oklahoma City, Oklahoma. Closing date March 3, 1941. Entry fee $1.00, limit 4 prints. March 22-29, 1941.

First St. Louis International Salon of Photography. Address W. E. Chase, Room 500, Missouri Pacific Building, St. Louis, Missouri. Closing date March 3, 1941. Entry fee $1.00, limit 4 prints. March 24 to April 6, 1941.

Fourth National Photographic Salon for Women. Address Women's Salon Committee, Miniature Camera Club of Philadelphia, Architects Bldg., 17th & Sansom Sts., Philadelphia, Pa. Closing date March 21, 1941. Entry fee $1.00, limit 4 prints. April 12 to 28, 1941.

On Nov. 18th the San Francisco Museum of Art is inaugurating a Photo Forum. Eight sessions are planned for successive Monday nights at 8 p.m., with the final meeting of this series to take place on Jan. 20th. At least three other series of meetings are in prospect for next year. In the present series, interested photographers are invited to show 8mm. and 16mm. moving pictures and slides in black and white and color. This activity is planned to stimulate interest among amateur moving picture photographers and those making slides, to offer amateurs an opportunity to compare their work under ideal conditions, to afford those interested the benefit of constructive criticism by competent judges, to sponsor brief talks by authorities and to present changing exhibitions on the various aspects of photography.

Tickets for the series of eight programs are $2.50, single admission ticket 50 cents. Miss Paula de Luca is in charge. Full details may be obtained by addressing the museum.

"A Slumberer" — *Lo, Tak-Cho, Hong Kong, China*

First Award—Advanced Class

■ It seems to us that the title rather leads away from the true feeling of this picture. We get the impression of a sort of grim concentration, instead of the relaxed aspect of a person sleeping. The fact that the head rests only very lightly on the hand and the taut jaw, both seem to suggest that the mind is active, not at rest. The pose is very well worked out. Notice in particular how the dark garment, which carries across the base of the print, cooperates with the hand in contributing a firm support to the head.

We could wish that the tip of the ear did not coincide with the top of the print. It would be better to allow a little more at the top so that the ear could complete itself within the picture space.

Data: 6 x 6 cm. Rolleiflex; 1/50th sec. at F:8, on Kodak Super XX, in Kodak D-76; by 3, 500-watt lights; 10 x 10" bromide print.

Second Award

Advanced Class

"Dawn on the Dunes"
John G. Holyoke,
Pasadena, Calif.

■ This print has a lovely richness of tonal quality that unfortunately cannot be carried through into the reproduction. There is also a fine swinging movement with the eye moving leftward from the lower right to the brightest patch of sand, then almost horizontally to the far right where it makes another abrupt turn and moves between the sand dunes and the distant hills. Notice, also, the beautifully graceful lines of the dunes against the sky, and how this strengthens the composition by strengthening the movement toward the right. The large expanse of sky is admittedly monotonous. Personally we like the picture best presented as a long horizontal panel with only a little sky showing. There is no valid reason why it should not be shown in such a version, though Mr. Holyoke could hardly hope for exhibition success with such a print. It wouldn't look well on a 16 x 20" mount.

Data: 3¼ x 4¼" Graflex; Kodak Anastigmat lens; 11½ x 15½" print on Agfa Brovira, split sulphide tone.

Third Award

Advanced Class

William A. Garnett,
Pasadena, Calif.

■ It seems to us that Mr. Garnett has worked out a highly interesting arrangement here and that his rendering of it in photographic terms is highly satisfactory. Beginners hear so much about lines which lead the eye out of the picture that they sometimes get the idea that any line which reaches the edge of the print is bound to take the eye along with it. This idea has reached the point of an obsession with more photographers than one would imagine. Such unfortunates can never really see any picture—all they ever do is trace out lines. The trouble is that they have gotten into the habit of *directing* their eyes along such linear elements as may appear in a picture. What we must learn to do, if we are to judge of an arrangement, is to learn to let the eye be *led*. In short, the picture must play the active part in the picture-observer relationship. To tie this down to the present print, some have said that the lines of the ropes lead *out*. If the picture is looked at properly it becomes plain that the lines lead *in* because the strong pulling power of the brilliant hulls insist that they shall.

Data: 15½ x 16" bromide print.

C. Stanton Loeber,
San Francisco, Calif.

Fourth Award

Advanced Class

■ This is interesting material and Mr. Loeber has done a good job of photographing it. It appears to us to be laid out in a fashion which makes it rather difficult to achieve a wholly satisfactory arrangement. There is no very clean cut point of emphasis. The area behind where the road goes between the two groups of buildings is probably strongest, but the gate in the foreground is almost equally strong, and the eye jumps about to the various lesser points of interest (farm machinery, etc.) in rather helter skelter fashion. The roadway functions as the principal unifying force and if it turned only to the left, and not to the right as well, things would be much better. As things are, however, the area of light-toned roadway along the right edge of the print offers the eye an opportunity to slip out of the picture. It is plain that Mr. Loeber is aware of this and has done what he could to keep the eye moving toward the left by slightly deepening the tone values along the right, but a complete solution is hardly possible. If the camera were moved to the right, so that the first few feet of the road between the buildings were visible, that would increase the pulling power of the road. but the line of the road in the foreground would then run almost horizontally, and that would make it more difficult to control along the right edge of the print. It is hardly possible to be sure about shifts in camera angle with such complicated material unless one is on the spot or could see the suggested variation.

Data: 13 x 16½" print.

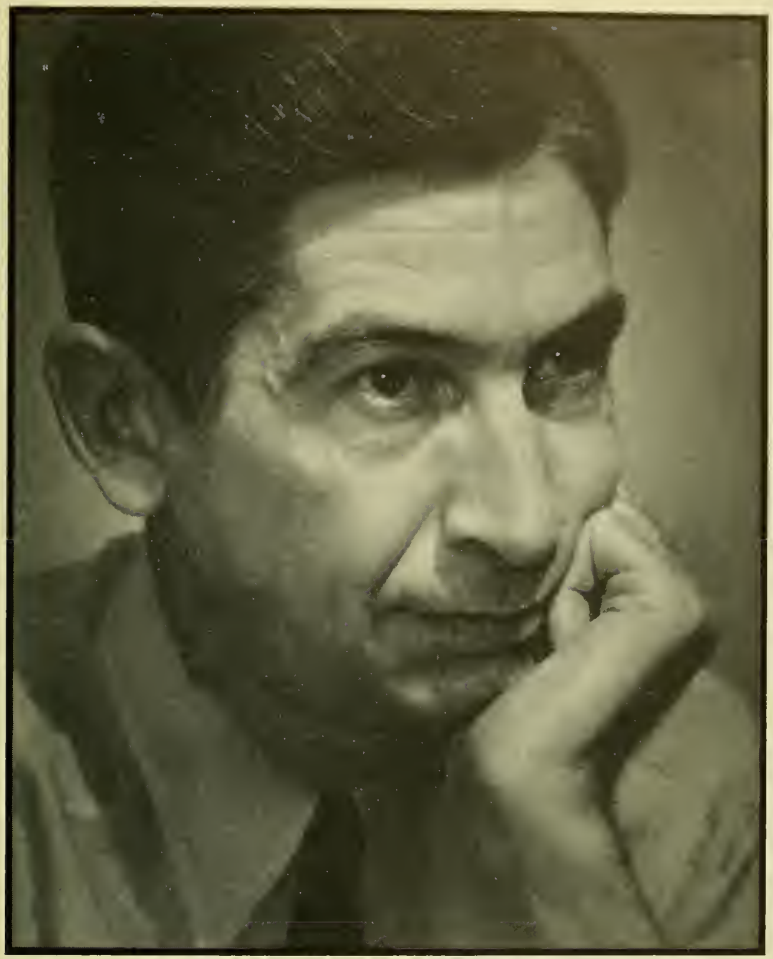
"Counter Point"
Axel Bahnsen,
Yellow Springs, Ohio

Fifth Award

Advanced Class

■ The repetition of similar forms is very well carried out here. There is enough variety to keep the interest alive and things are further stimulated by contrasts—the contrast of texture in particular. Some may feel that the two elements are too even in interest value and that, as a consequence, the picture lacks unity—always an essential characteristic. We cannot follow that reasoning. The human element is always more interesting to us humans than any representation of it can be and, in addition. the girls head is shown in bright tones which are strongly contrasted against the dark of the statue, both of which factors tend to give the human head principality in the picture.

Data: 15 x 19" print, sepia toned.



"Interned" *Haden Hankins, Brook Hill, Va.*

First Award—Amateur Class

■ Mr. Hankins shows a thoughtful aspect of this face in a natural and unostentatious fashion that is thoroughly satisfying. Observe the very precise control of lighting. Unless the light was held down on the ear and hand, both of these would become very disturbing elements in the portrait. It is difficult to control a hand and wrist shown in this prominent manner, and it can only be done successfully when the lighting is well controlled and the tone value of the background behind it given careful consideration. The contrast of the hand with the background is kept low and this helps greatly to reduce its prominence. There is, nevertheless, a slight feeling of instability because the wrist, in its abruptly trimmed condition, does not appear to be a convincing support. The picture would be better without the hand.

It is our belief that photographers generally tend to crowd too large a head into a given picture space. This becomes a particularly dangerous procedure when the hands are included. Study the work of the finest portrait artists in any medium and note the relation of head to picture space. The head is seldom as large as this, even when nothing more than a bust is shown.

Data: 9 x 12 cm. Nagel; Agfa Superpan Press in Kodak DK-20; 8 x 10″ print on Agfa Brovira, in D-72; bleached and re-developed in Pyro for warm tone.

Second Award

Amateur Class

Perry Steward,
San Francisco, Calif.

■ The concentration of light on the face of the barn is a particularly fortunate circumstance here, for it gives an emphasis and cohesion to the picture which could hardly be obtained in any other way. It is important for the picture maker to realize that the effectiveness of a picture is often greatly enhanced by the psychological effect of some seemingly rather inconsequential detail. In this case, the way in which the hay projects from the opening in the barn suggests the human activity which takes place there, and thus gives the picture an active quality which it would not otherwise have. The tree at the left offers a variation of form and texture which is a pleasant relief to the eye. The definition is not quite as good as we would like to see it in a subject which depends to a considerable extent upon well rendered textures. For us, however, the only serious defect is in the out-of-focus foreground. Every photograph is to a greater or lesser extent a compromise. We take the best camera position available, for example, often with the full knowledge that it is not quite perfect. In this case, if complete depth of field was not possible (it appears that it should be within reach of ordinary equipment) there was no alternative but to let the foreground go soft. Such a condition, however, will almost always be disturbing and is to be avoided whenever possible.

Data: 10½ x 13″ bromide print.

Third Award

Amateur Class

"Feeding Station"
Joe Monroe,
Detroit, Mich.

■ Mr. Monroe has found an interesting pattern in this material and the brilliance of the print gives it an emphatic quality that is quite commanding. The well placed feeding station brings purpose and meaning into a picture which would otherwise have to function almost as an abstract design. It functions well as a point of emphasis in the pattern, except for one factor. The bright patch of sunlight on the balcony, just behind the feeding station, is perhaps the strongest light in the picture, and it is made more emphatic by the dark tones adjacent to it. As a result, this bright patch prevents the eye from resting easily on the feeding station, which is obviously a much more satisfying point of emphasis. This condition could be corrected by carefully dodging in of the bright area. It might also be helpful to lower the tone value of the three wires which run out of the print at the top; not over their whole length, but only as they approach the edge of the print. The bright spots in the background at the upper left should, of course, be eliminated as completely as possible.

Data: 3¼ x 4¼″ Certotrop; Hugo Meyer Trioplan; 1/25th sec. at F:22, on Agfa Superpan Press in Kodak D-76; no filter; 13½ x 16½″ print on Agfa Brovira Glossy.

Fourth Award

Amateur Class

"Harriet" *Harvey J. Croze, Detroit, Mich.*

■ Pose and expression are particularly good here except for the eyes. These are turned a bit too far, so that they are not presented in a pleasing aspect. The effect of looking over the shoulder would be just as pronounced if the eyes were not turned so far. We might almost say that the camera tends to exaggerate such turning of the eyes. Not actually, of course, but in a psychological sense. If this charming girl were actually before us, in this pose, we would not be conscious of any strain in the eyes, because eyes and face would be in continual movement and we would receive a series of continuous impressions. The camera, however, picks out a single instant from this continuous movement and freezes that, even though the picture does convey a strong impression of movement as is the case here. As a result, our attention is sharply focussed on a single aspect of what is actually a fluid condition. Because of this, a pose which may actually be quite comfortable can easily appear strained in a picture. The moral, of course, is restraint. Don't turn the head or eyes quite as far as they will go. No strain should be apparent, and the observer should receive the impression that the movement, whatever it may be, can continue in the same direction. This is a good picture, only slightly weakened by the defect we have noted. The bubbling vitality of the outdoor girl is beautifully caught here, and that is a thrilling thing to see.

Data: Speed Graphic; Zeiss Tessar lens; 1/50th sec. at F:8 on S.S. Pan; sunlight with light yellow filter; 11 x 14" print on Eastman Kodabrom glossy.

Fifth Award

Amateur Class

"Boulevard" *Stanley Rayfield, Forest Hills, N. Y.*

■ This picture presents an atmospheric mood most effectively. The quality of the lights shining through fog is particularly well rendered. The secret, of course, is to maintain some tone value in the lights. If they are simply blank white paper, as is so often the case, there can be so suggestion of atmosphere between them and the observer. We feel that the picture functions better with the foreground area reduced by trimming about one-fifth the total height away from the base. Such a large expanse of foreground is rather monotonous. Picture proportions can be reestablished by slight trimming from the left. A few who have seen this picture (not the judges) have been bothered by the fact that the car is parked on the wrong side of the road. It seems to us that such individuals are "unable to see the forest because of the trees." This is not a picture about how to park a car. It presents an atmospheric mood and nothing more. It is probably true, however, that pictures are sometimes turned down for reasons such as this, however unjustified they

(Continued on page 630)

Monthly Competitions

SCORING FOR CLUB TROPHY CUPS

The following won prizes for their clubs in the Advanced Class: C. Stanton Loeber, for the California Camera Club; Lo, Tak-Cho, for the Hong Kong Photographic Society; John C. Holyoke and William A. Garnett, for the Pasadena "Y" Camera Club.

The following won prizes for their clubs in the Amateur Class: Haden Hankins, for the Camera Club of Richmond; Perry Stewart, for the California Camera Club; Joe Munroe and Harvey J. Croze, for the Detroit Camera Club; and Stanley Rayfield, for the Miniature Camera Club of New York.

The following prize winner has not indicated any club affiliation: Axel Bahnsen.

CONTRIBUTING CLUBS

Brooklyn Institute of Arts and Sciences
California Camera Club (San Francisco)
Camera Club of Richmond (Va.)
Camera Club of San Pedro (Calif.)
Chaffey Camera Club (Chino, Calif.)
Dallas Pictorialists (Texas)
Detroit Camera Club
Exeter Camera Club (Calif.)
Florida Camera Club (Tampa, Fla.)
Fresno Camera Club (Calif.)
Grays Harbor Camera Club (Wash.)
Hong Kong Photographic Society (China)
Kent Camera Club (Wash.)
Knoxville Camera Club (Tenn.)
Miniature Camera Club of New York
Pacific Photographic Society
Photographic Society of Philadelphia
Photographic Society of San Francisco
Salt Lake Camera Club (Utah)
University Extension Division Camera Club (Milwaukee, Wis.)
Wilmington Sump Ducks (Calif.)

FINAL STANDING OF CLUBS

Large Clubs—Advanced Class

California Camera Club	16
Photographic Society of Philadelphia	5
Brooklyn Institute of Arts and Sciences	3
Manhattan Camera Club	3
Fort Dearborn Camera Club	2
Fotoklub Ljubljana	2

Small Clubs—Advanced Class

Pasadena "Y" Camera Club	63
The Pack Rats	19
E.P.I.C. Pool	11
Signa Phi Nothing	9
Hong Kong Photographic Society	5
Aremac Camera Club	4
Aluminum Camera Club	3
Rothschild Camera Clinic	3
Specialists Camera Club	2

Large Clubs—Amateur Class

California Camera Club	32
Miniature Camera Club of New York	30
Detroit Camera Club	23
Photographic Society of San Francisco	14
Amherst Camera Club	9
Camera Club of Richmond	7
Manhattan Camera Club	5
Camera Club of Oakland	4
Green Briar Camera Club	1
Shanghai Camera Club	1

Small Clubs—Amateur Class

Dallas Pictorialists	16
Camera Club of San Pedro	6
Modesto Camera Club	5
San Marino Camera Club	5
Marina Camera Club	2

(Continued from page 629)

may seem to some of us. Consequently, the photographer who is interested in exhibiting, is wise to take cognizance of the realities of a situation by correcting such conditions. In this case, it would mean turning the car around.

Data: Super Ikonta B, 2¼ x 2¼"; 1½ minutes at F:11, on Agfa Superpan Press; 13 x 16" chlorobromide print.

Club Trophy Cup 1940

THE WINNERS

Large Clubs—Advanced Class

California Camera Club
San Francisco, Calif.

Small Clubs—Advanced Class

Pasadena "Y" Camera Club
Pasadena, Calif.

Large Clubs—Amateur Class

California Camera Club
San Francisco, Calif.

Small Clubs—Amateur Class

Dallas Pictorialists
Dallas, Texas

The End—The Beginning

For the seventh time we reach the annual conclusion of the scoring for the Club Trophy Cups. Identical gold cups are awarded to each of the four winning clubs listed above.

Scoring for the 1941 Club Trophy Cups begins with the January issue, the judging for which takes place December 1st. Prints are judged on the first day of each month following. Clubs should remember that consistent submission throughout the year is the secret of success.

SUMMARY OF COMPETITION RULES

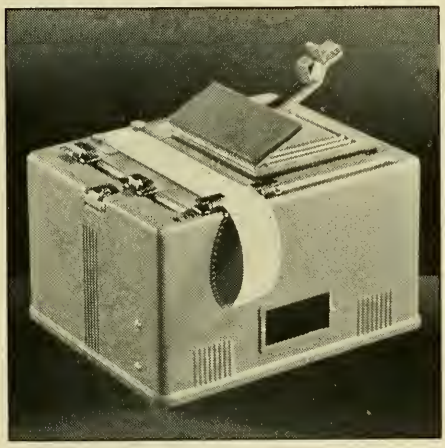
1. Open to all, amateur or professional, club member or non-club member.
2. Closing date 1st of each month.
3. Indicate class of entry (Advanced or Amateur) and club membership (if any) on back of *each* print. Technical data should accompany each print.
4. No entry fees or blanks required.
5. Stamps must be enclosed for return of prints.
6. Full explanation will be sent free on request or may be seen on Page 40 of January 1940 issue, or in the forthcoming January 1941 issue.

Notes and Comments

New Products

Edwal's new Quick-Fix offers important time saving advantages to the photographer. The tedious job of dissolving hypo crystals is eliminated and films can be fixed completely in three minutes. One quart of the concentrate which sells for $1.00 will make one gallon of high speed (3 mins. for films) solution or two gallons of standard speed solution. Write to Edwal Laboratories, Inc., Dept. 12 CC, 732 Federal St., Chicago, Ill., for a new free folder which gives complete details.

The new Kodak All-Metal Printer accommodates negatives up to 4 x 5″ and 3¼ x 5½″. Special provision is made for the printing of 35 mm. negatives in uncut strips, one frame at a time in sequence on 35 mm. paper. The four independently adjustable margin masks have black moulded handles



Kodak All-Metal Printer

for ease of manipulation and are made of extremely thin spring metal, insuring excellent negative-to-paper contact. The printing light turns on automatically when the platen is depressed and goes off automatically when the platen is released. The fine appearance of the new printer is evident in the illustration. Price is $16.50. See it at your dealers.

The Boes Model A Film Winder offers 35 mm. bulk film users an economical and convenient machine for reloading all standard magazines and cassettes. The loader will take 100 ft. rolls of Eastman film or 50 ft. rolls of other popular brands. The bulk film storage chamber is normally closed when spool leaders are threaded. Only when the door is closed can the film gate be opened. Then the film gate opens wide so no scratching of the film can occur. Exposures are automatically counted as they are wound into the cassette so that any desired number can be loaded. Price is $4.50, $3.60 for Economy Model B. Write to W. W. Boes Company, 3001 Salem Ave., Dayton, Ohio, for full information.

The new Master Positive and Negative Monocular Viewer—distributed by Hannelly, 218 South Wabash Avenue, Chicago, Illinois—is a handy and efficient device for viewing single or double frame 35 mm. negative and positive film strips or 2 x 2″ slides, black and white or Kodachrome. It has a mahogany base fitted with telescopic tubes, thus permitting adjustment of focus of the 1⅝″ Plano convex Simpson lens forming the optical element. Diffusion of light is had by a celluloid ground glass. Priced at $.50.

A specially-designed Goodspeed Flash Synchronizer for exclusive use with Foth Derby Cameras, has just been announced by Burleigh Brooks, Inc., national distributors of this popular miniature which boasts over 80,000 owners.

The new synchronizer has a special, extremely compact plunger which is instantly and securely fastened to the front plate of the camera, and operates the regular body release button. The reflector-battery unit simply screws into the tripod socket and may be attached or detached in a jiffy. In addition, the synchronizer is quickly adjusted to exactly match the shutter characteristics of any Foth Derby by the camera owner himself. Once set, it is said to remain in perfect synchronization, thus assuring perfect results.

Goodspeed Flash Synchronizer on Foth Derby Camera

Like the regular Goodspeed Synchronizer this special model requires no cocking or winding; it will never injure the camera shutter, and it uses small, standard batteries which are contained in the reflector case, thus eliminating the bulky battery case. An extension outlet for plugging in side or multiple lighting is included in the reflector case.

This special Goodspeed Synchronizer for

Foth Derby Cameras comes complete with instructions and a handsome flannel bag for carrying both reflector and synchronizer tip. Retail price is $12.75.

Selling for less than one third the price of present adapters designed for use of General Electric's "mighty midget" No. 5 Mazda photoflash lamp, is a new adapter just put on the market by the Frank W. Morse Company of Boston.

The new adapter properly positions the No. 5 lamp with respect to reflector of the average inexpensive flash camera used by amateurs and of many more expensive flash cameras used by professional photographers. It properly compensates for the difference between the length of the "mighty midget" and length of contemporary G.E. Mazda photoflash lamps, namely, the No. 7, 11A, and 16A.

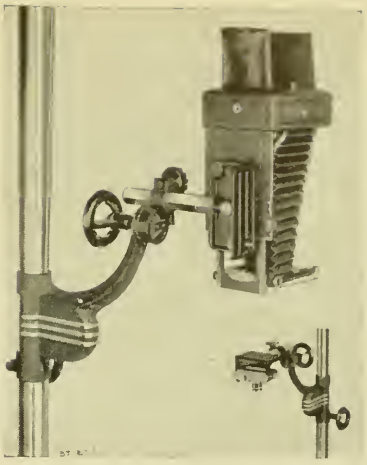
In addition to decreasing cost of adapter equipment, the new "tool" increases the amount of light directed upon the subject. Distance from the bottom of the socket's center base contact to the top of the hook of its "J"-slot measures 1⅝ inches. It is equipped with a medium screw base. The new adapter has a list price of 10 cents.

A new aid to the skill of the enlarging enthusiast is announced by the manufacturers of the Enlarg-O-meter, Research Engineering Company, 307 S. Michigan Ave., Chicago, Illinois. The Reco precision Gray Scaler is the first of its kind and is made in the form of a pocket slide rule. An outstanding feature of this unit is the printing of the relative exposure numbers beside each value on the gray scale. Thus a reference to the scale will indicate at once the physical characteristics and limitations of the paper. It is priced separately at 50c postpaid, but is included with the Enlarg-O-meter as an extra value for the price of $4.95.

The Halldorson Company, 4500 Ravenswood Avenue, Chicago, Ill., have just released the first series of their new 20″ Amateur Print Washer. Designed along the lines of the very successful 12″ and 16″ models of the same washer, the new 20″ model accommodates both the popular 11x14″ and 14x17″. Like the other two models, this new Halldorson Washer is rust and corrosion proof, and washes prints thoroughly without damage. No collecting at input or outlet. The outlet removes hypo saturated water, but keeps level in basin at uniform height.

The distributors for these washers are: Eastern, L. R. Biber Company, Times Bldg., New York, New York; Central, The Mostow Company, Merchandise Mart, Chicago; and Western, Frank A. Emmet Company, 1262 S. Fedora St., Los Angeles, California. Catalogs covering Halldorson Photo Products may be had from any of the above firms.

A new 9 mm. F:2.7 Kodak Anastigmat accessory lens for the Magazine Cine-Kodak Eight which provides great depth of field and a wide angle of view has been announced from Rochester by the Eastman Kodak Company. The 9 mm. lens requires no separate adapter. At the F:2.7 opening, the depth of field extends from 4 feet to infinity; at F:8, 2 feet to infinity; at F:22, 1 foot to infinity. Owing to the great depth of field, focusing is unnecessary and no focusing movement is provided. Retail price of the new 9 mm. F:2.7 Kodak Anastigmat Lens for the Magazine Cine-Kodak Eight is $27.50.



Solar Copying Stand

An ideal setup for copy work of the most critical and exacting types is provided by the new type Solar copying stand just announced by Burke & James, Inc., 223 W. Madison Street, Chicago, Illinois. It is for use with any type of camera with suitable lens or extension for copying.

An adjustable camera supporting arm permits the camera to be brought down within 8-10 inches from the baseboard, depending upon the size of camera used. With the bellows extension on the camera, it is thus possible to bring the lens down to a few inches from the board. At top distance the camera is about 3 feet from the board.

A sliding rod, hexagonal in shape, permits in and out adjustment over an 8-inch range, and makes it possible to set the camera at any one of six different angles.

The complete assembly includes the standard Solar baseboard, upright standard, and adjustable camera supporting arm. The price is $17.50.

The Kingdon Film Washer is designed for use with bakelite or metal developing reel. Reels are inserted in the washer and water may be run in either directly or through a small hose. Hypo laden water is expelled through an 8 outlet base as well as from the top of the washer. Price is $1.00. Further details may be obtained from the Kingdon Photo Accessories Co., 44 E. 87th Street, New York City.

The Fotofolio is well known to all photographers as a handy, attractive looking storage device for contact prints, manufactured by the E. E. Miles Company, South Lancaster, Mass. Now they announce the new "Seeclear" Fotofolio which eliminates all mounting and pasting. Transparent pockets are attached, in overlapping fashion down the pages, by strong cloth hinges. It is only necessary to slide the prints into place. Each pocket holds two prints back to back with negatives, too, if desired. There are pockets for 96 prints and negatives, with space for 96 more. Available in two bindings, imitation leather $3.50, genuine $5.00.

A descriptive folder showing all models of fotofolios is available upon request to the above address.

Photographic Instruction

The Mortensen School of Photography has recently opened an Extension Division with fully equipped darkrooms and studio in the basement of Winter, Inc., 525 West Sixth St., Los Angeles, Calif. Teacher is Mr. Alexander Lilburn, a former pupil of Mr. Mortensen's who is thoroughly familiar with the Mortensen System. All instruction is under the personal supervision of Mr. Mortensen.

Instruction in the Extension Division is not designed to furnish a complete photographic course, but to serve as a means of checking on and correcting the individual student's weak points as indicated in the unique "Print Diagnosis" Chart, an innovation at the school.

Instruction is on the basis of private individual sessions and specific sessions will be recommended by the teacher on the basis of the showing made in the Print Diagnosis. Write to the above address for a free folder giving complete details.

Announcements

Changes and more changes are the order of the day at 70 Post St., San Francisco. Fluorescent lighting and new fixtures are being installed at a great rate and a new flashing Neon sign will soon announce BAXTER'S to all who pass that way. Manager Jerry Arends, formerly Carl Zeiss representative, has plans for a room especially equipped with easy chairs for photographic "bull" sessions, and a model darkroom will be installed for the free use of customers. Freddy Frederickson, formerly with Sherman & Clay and Bolex is in charge of the Movie Dept., and your old friend Jack Cannon is still right on the job. If you will drop into the store or send in your name and address you will receive a free set of nicely printed labels for your darkroom bottles, and your name will be placed on the mailing list to receive "Baxter's Camera News" each month.

The party which Klein & Goodman of Philadelphia threw to celebrate the 10th anniversary of the photo bulb will go down in history as one of the biggest events of its kind to date. The 2158 enthusiastic fans who attended offered striking proof of the ever growing popularity of synchroflash photography.

Featured guest speaker was Willard D. Morgan, of Morgan & Lester, New York City, who gave an excellent illustrated talk on Synchroflash Photography. The General Electric Company presented a plaque to Ben Klein and Louis Goodman to commemorate the occasion. At the close of the evening Mr. Salmon of Klein & Goodman demonstrated the new Eastman Kodatron Speedlamp, and the attending photographers had a great time making fast action pictures at 1/30,-900th of a second exposure.

The Color Photography Dept. of Fotoshop, 18 East 42nd St., New York City, in a recent dissertation on Color Photography, deplores the fact that many amateurs still feel that natural color prints are beyond the capabilities of the average amateur. Fotoshop maintains that anyone who can make a good black and white print can now make a good color print and goes on to cite the improved printing processes which are available. They mention the Chromatone process, the Curtis Orthotone process, the National Photocolor Kit for Carbro printing and the Carbro Kit offered by the Devin-McGraw Co., all of which help to reduce the difficulties of color printing. As a further aid in this direction Fotoshop now will make sets of color separation negatives from Kodachrome at $1.00 to $1.50 per set.

The "A to Z" Movie Accessories Co. (formerly Jacob Stein, Mfr.) announces a special attractive Christmas package for movie fans who make their own titles. With the purchase of the "A to Z" Movie Titling Outfit ($2.00) and Figurettes ($1.00) they are offering as their Christmas gift a newly designed "A to Z" Title Frame. This frame is conveniently light and removable. It is designed especially to take titles up to 7" x 9". This gift is given free with the $3.00 Christmas wrapped package that will thrill any movie maker's heart. It can only be obtained from the manufacturer.

The Chess-United Company, Inc., is anxious to assure dealers, owners, and prospective purchasers of Omag filters and other Omag products, of the continued availability of full supplies of Omag merchandise. Stocks have been built up during the last three years to take care of more than normal demand, for a considerable length of time. Shipments from Switzerland are arriving regularly with every indication that these shipments will continue.

Shortly there will be announced a new booklet describing the various functions of Omag filters, including full information of spectral characteristics. This booklet will contain listings of new types of Omag filters, such as Chromeflash for use with photoflash lamps and type "A" Kodachrome.

Inquiries for special types and sizes of Omag filters are cordially solicited.

Booklets and Catalogs

James H. Smith & Sons Corp., Lake & Colfax Sts., Griffith, Ind., will gladly mail a free copy of their new descriptive folder to anyone writing to the above address. The folder contains lighting diagrams, exposure table, and full details on a number of the most popular items in the Victor line of lighting equipment and accessories, including recent additions to the Victor line.

If you are interested in flash equipment do not fail to write for the excellent descriptive folder offered by S. Mendelsohn, 46 Farrand St., Bloomfield, N. J., on the Mendelsohn Series D Universal Speedgun. This excellent synchronizer can be attached to almost any camera with a cable release outlet and sells for $25.00 with 7" Adjustable Aplanatic Reflector.